GEOHome v1.0

Overview, Installation and Operator's Manual

DCM-1.001

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PREFACE

About This Manual

Purpose

This document is intended for use by those individuals who are responsible for the installation and operation of the GEOHome tool after delivery. Enclosed descriptions provide a complete set of procedures related GEOHome tool and data installation, routine maintenance, upgrading, and problem reporting.

Scope

This document is the primary reference for:

- technical overview
- tool installation
- data formatting / integration
- software operation
- software upgrades
- routine software maintenance
- problem reporting
- current distribution content listing
- source code

It does not cover such things as:

- normal operation of the system
- detailed technical description of any of the system components

Audience

This manual is intended for users who are familiar with ESRI ArcView 3.1 operations, and possess at least an intermediate knowledge of:

- Windows / UNIX operating systems
- Perl / CGI / Web programming

Typographic Conventions Used in this Manual

Italics References to other documents, or to other sections or paragraphs within this document, are shown in italicized text. For example, "Refer to *Appendix C, Source Code*.".

`Courier` Directories, subdirectories, scripts, files and filenames, databases, logs and are all shown in the Courier typeface.
For example, "...Avenue script under the directory `scripts`"

`Courier` System Procedures, commands, programs and utilities are indicated using the Courier bold typeface.
For example, "Invoke the associated **`Popup | GetStatistics`** utility.".

Acronyms and Abbreviations

A

ANSI	American National Standards Institute
ASCII	American (National) Standard Code for Information Interchange

C

CGI	Common Gateway Interface
CD	Compact Disk
CD-ROM	Compact Disk Read-Only Memory
CPU	Central Processing Unit

D

DB	DataBase
DBF	dbase Database file format

E

ESRI	Environmental Systems Research Institute
Excel	Microsoft Excel97 spreadsheet software

F

FAX	Facsimile
FME	Feature Manipulation Editor
FTP	File Transfer Protocol

G

GIS	Geographic Information Systems

I

ID	Identification
IRRED	Input Raw Real Estate Data
ISND	Input Street Network Data

K

KB	KiloByte

M

MB	MegaByte
MLS	Multiple Listing Service
MS	Microsoft Corporation

P

PERL	Practical Extraction and Reporting Language

R

RDBMS	Relational DataBase Management System

S

SQL	Structured Query Language

1

GEOHome Overview

1.1 GEOHome Concept

The GEOHome project combines software and GIS development to produce a hybrid web-based GIS application that allows users to spatially query maps, attached to real estate information. This development breaks the barrier of searching for house information from data records and low-resolution imagery independent of eachother.

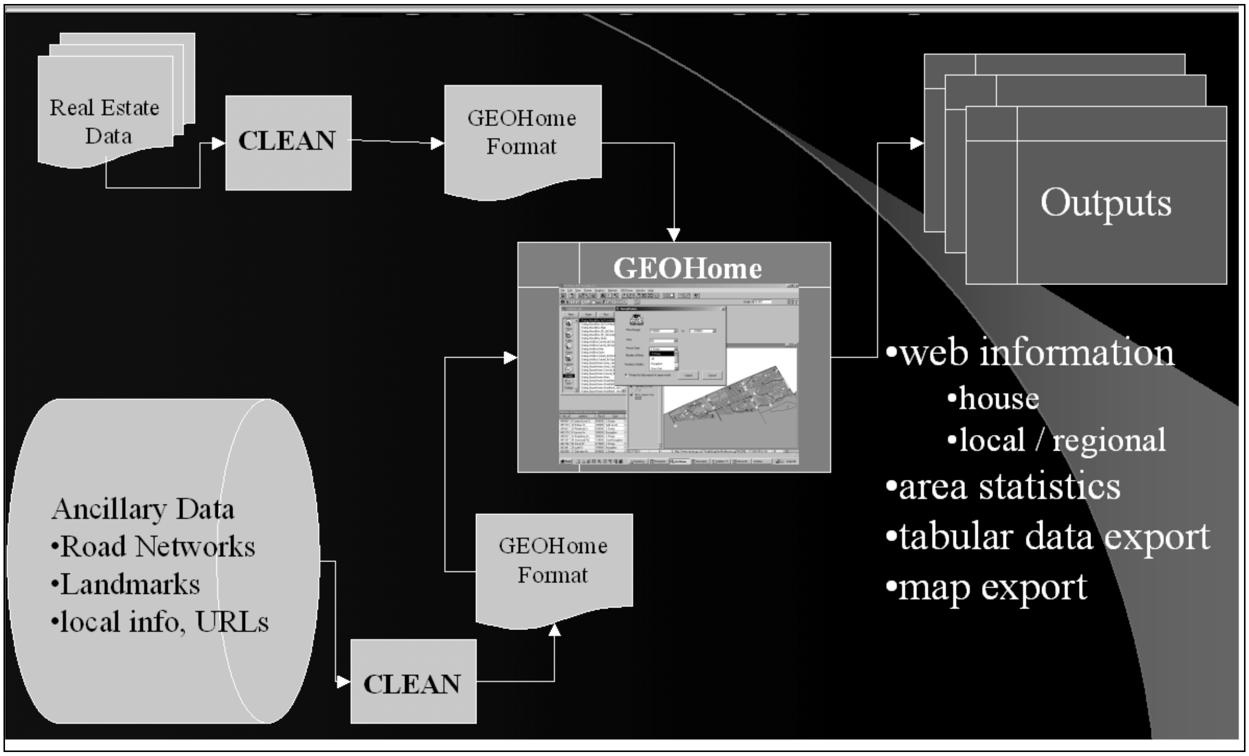
The GEOHome project also integrates GIS and web applications, by linking spatial data directly to online resources and information. With the revolution of technology, bandwidth speeds and Internet applications, many organizations are moving their document types directly to their HTTP server. The idea of GEOHome in relation to web applications is to integrate / interact. This eliminates need for redefining a document structure inline to the GIS application if there is one already in place.

Finally, the GEOHome principle is based on open-source conventions i.e. freely available / editable source code, customization and development. All source code is available on the GEOHome distribution, and in *Appendix C: GEOHome v1.0 Source Code*. The GEOHome website acts as the central repository for development news on the GEOHome system. Development contributions are welcome and accepted at:

http://www.nrcan.gc.ca/~tkralidi/tkralidi/gis/project/

1.2 Process Flowchart / Strategy

Figure 1-1: GEOHome Flow



The GEOHome strategy follows a simple, scalable methodology:

- access real estate information / data
- clean / extract into GEOHome accepted format (delimited text)
- access basemaps, road networks
- clean / crop for desired area into GEOHome accepted format (ESRI shapefile)
- geocode real estate data against road network
- use GEOHome for output results

1.3 Data Requirements

The main GEOHome requirements for real estate data follow ASCII file format in delimited text. Street network data is required in ESRI shapefile format, or a format easily converted to ESRI shapefile format by any third party GIS data converter software (such as FME).

1.4 Limitations

The initial release of GEOHome is a collection of Avenue scripts integrated into an ArcView project environment. As such, some routines may be hard coded as a result of the rapid application prototyping development process. However, the program was designed for easy customization and serves as an excellent baseline application framework to build on.

1.5 Further Research / Recommendations

Research was conducted into the concept of development with ESRI's MapObjects, within an MS Visual Studio environment. While the final application would initially cost less to distribute among users in comparison to large-scale site licensing of ESRI ArcView software, GEOHome found that taking this approach would hinder long-term development. MapObjects and relevant IDE's are reliant on the Microsoft Windows computer architecture.

Further recommendations include:

- Continuing within ArcView API (modularizing further to extensions)

- Expanding to platform independent IDE's, such as Java or Perl

2

Tool Installation

2.1 Operating System Configuration

For GEOHome software, the operating system on which it was developed was Windows 98. This document assumes installation of Windows 98 prior to tool and data installation.

2.2 Distribution Medium

GEOHome is delivered on CDROM, which contains all of the files necessary to install the entire tool, including relevant data and scripts. Please refer to *Appendix B: CDROM Distribution Contents* for specific content listings.

2.3 Data Installation

GEOHome uses the sample data provided on the CDROM to enable the tool within ArcView.

2.4 Installing the GEOHome Initial Release

When you are installing the initial release of the GEOHome tool, you will need to:

- set up data directories
- locate and install the ArcView project file

- edit paths within the project file relative to the data installation

See the following subsections for more information.

2.4.1 Setting Up Data Directories and GEOHome ArcView release.apr File

- using Windows Explorer, locate the `CDROM` directory on your system
- move into the `release` directory
- copy the entire directory's contents into the directory structure from which you wish to run your application. This directory includes the `release.apr` file
- open the `release.apr` file with a common ASCII text editor
- edit file paths to reflect your current working environment

3

Data Formatting

3.1 Formatting Input Data

3.1.1 Input Raw Real Estate Data

Input raw real estate data (IRRED) can be derived from a number of sources; this GEOHome release focussed on simple saving of house data and imagery from Internet real estate sites to disk.

You can check the `house_data` directory within the GEOHome release CDROM for IRRED examples.

Based on the examples used, the GEOHome system used the following fields as defaults:

Figure 3-1 IRRED Fields

MLSID	Price	Type	Area	Numbeds	Numbaths	Hotlink

Use the Perl program located in `scripts` to format the house data in a given directory

```
% formatHouseData.pl
```

An output ASCII delimited text file can then be imported into ArcView with the **`Add Table`** function. Be sure to edit the file to reflect your data and selections before import to ArcView.

3.1.2 Input Street Network Data

Input Street Network Data (ISND) can be derived from any GIS software package capable of geocoding. Derived files can then be cropped / cleaned / built to organize topology before input to the GEOHome system. You can then add these files with the **Add Theme** function in ArcView.

3.1.3 Web Configuration

In order to utilize the Hotlink function within GEOHome correctly, you must configure the IRRED file's Hotlink field before inputting the table in ArcView. You can edit the formatHouseData.pl file to point to a specific path located on your server for other data.

You must also edit the findhouse.cgi program in the scripts directory to point to the correct path in which your house data is located.

Note: A functional NCSA-type HTTP server, such as Apache or Microsoft NT server, with a cgi-bin configured directory, is required.

3.1.4 Geocoding in ArcView

You can use ArcView's **geocode** function to manually place these houses, geocoded, into a new output theme. Or use the Avenue development environment to automate this process according to your requirements.

3.1.5 Ready for ArcView

You should now be ready to use the GEOHome system within your ArcView application.

4

Getting Started Using GEOHome

This section familiarizes operators with the GEOHome interface features within ArcView.

4.1 GUI Overview

The main GUI components specific to GEOHome are shown below.

4.1.1 GEOHome Object Model / Functional Architecture

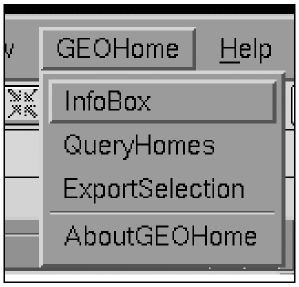
Figure 4-2 GEOHome Functions

Function	Accessible From
`InfoBox`	`MenuBar`
`QueryHomes`	`MenuBar, PopupBar`
`ExportSelection`	`MenuBar, PopupBar`
`HotLinkToWebPage`	`Hotlink Button on ToolBar`
`GetStatistics`	`PopupBar`

4.1.2 Using Pull-Down Menus

The following items are available from the GEOHome menu:

- **`InfoBox`**
- **`QueryHomes`**
- **`ExportSelection`**
- **`AboutGEOHome`**

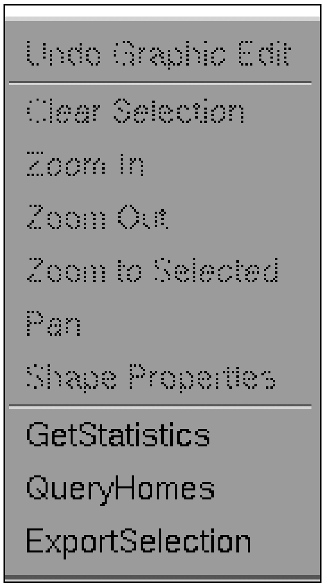


The menu items act just as any standard ArcView menu item, with help messages displayed in the bottom left corner (status bar) on your display.

4.1.3 Using Popups

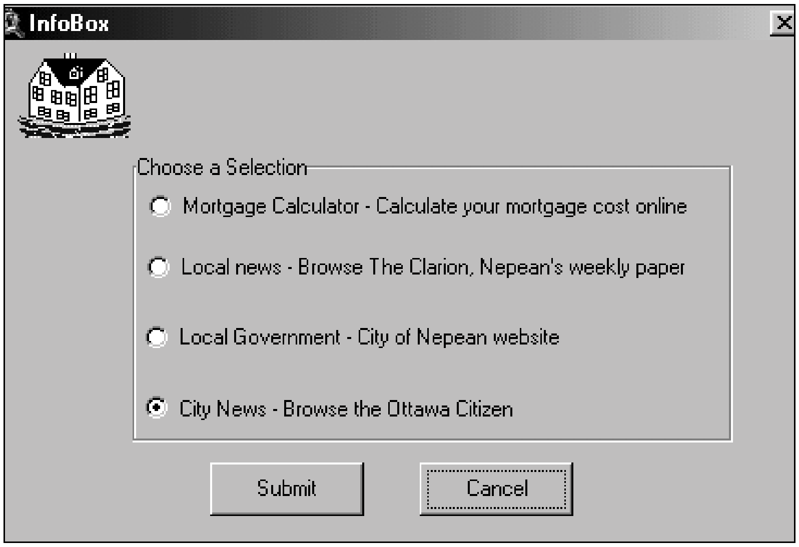
The following GEOHome items are available from the ArcView **Popup** menu:

- **`GetStatistics`**
- **`QueryHomes`**
- **`ExportSelection`**



Utilize the Popups as you would any ArcView default Popup item.

4.1.4 Using the `InfoBox` Dialog Box



InfoBox

Choose a Selection

○ Mortgage Calculator - Calculate your mortgage cost online

○ Local news - Browse The Clarion, Nepean's weekly paper

○ Local Government - City of Nepean website

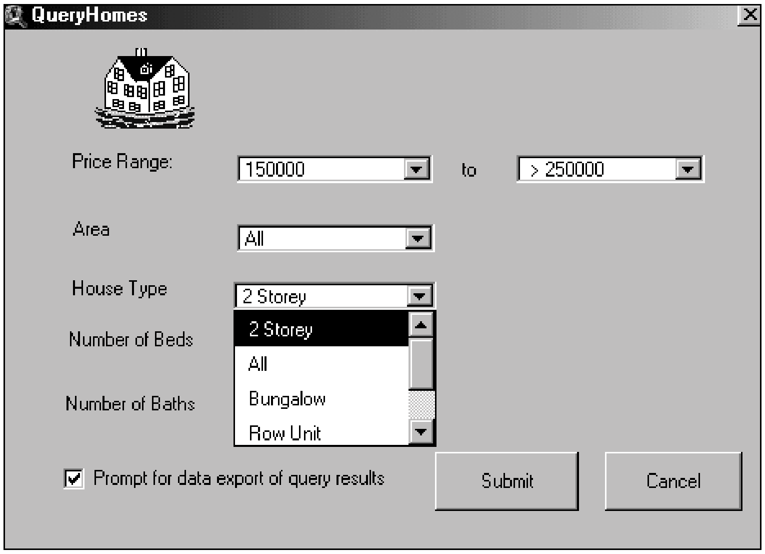
● City News - Browse the Ottawa Citizen

Select this option from the **`GEOHome | InfoBox`** menu item

- Click the radio button of your choice
- Click submit

Your selection will point to a website represented by your choice. A web browser application will open and send the URL of the radio button selected as a request to the browser.

4.1.5 Using the `QueryHomes` Dialog Box



Price Range: 150000 to > 250000

Area All

House Type 2 Storey

☑ Prompt for data export of query results

Select this option from the **`GEOHome | QueryHomes`** menu item or **`Popup | QueryHomes`** item. If there is a selection bitmap defined, the function will select from that set. Otherwise, the function will select from the entire dataset.

- Select form values best representing your query choice
- Choose all if a given parameter is not important to your search
- Click the checkbox if you would like to export your output selection to a tabular format
- Click submit

Your query will highlight matching records to your view window.

4.1.6 Using the `ExportSelection` Dialog Box

Selecting this option from either the **`GEOHome | ExportSelection`** menu item or **`Popup | ExportSelection`**. This function will prompt you to save your data selection to an external tabular data format.

- Select the format you wish to export to

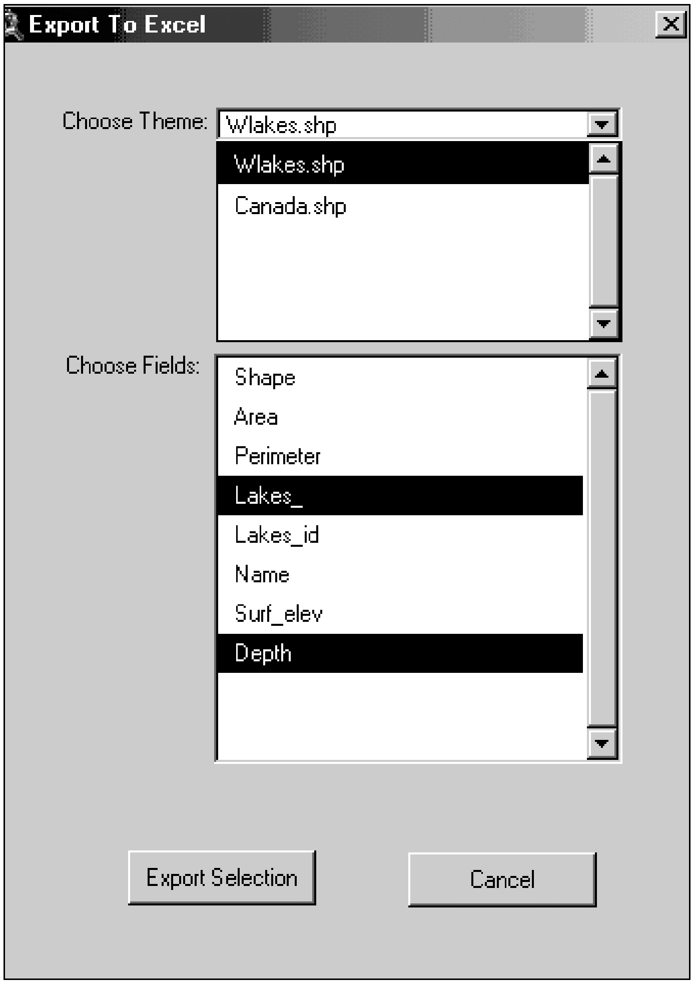
- If **`dbase`**, **`INFO`**, or **`Delimited text`** is chosen, you will be prompted to save in the directory of your choice.

- If **`Excel`** is chosen (Windows-specific platforms), you will be prompted to choose which fields you wish to export from your data selection.

  - Choose multiple fields with the click-shift option

  - Click Enter

Your chosen fields and records will be outputted to the format of your choice. Your Excel format will open a Microsoft Excel97 workbook application.



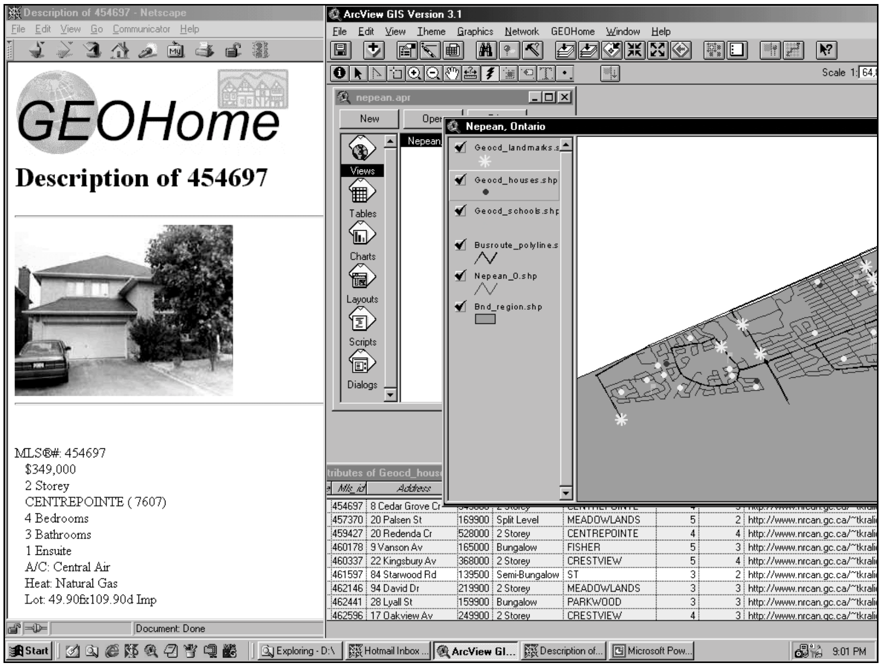
Choose Theme: Wlakes.shp

4.1.7 Using the `HotlinkToWebPage` Tool

Selecting this option from default ArcView **`Hotlink`** tool button will send your selection to a web-based GIS real-estate application.

- Select the property you wish to gain more information on by clicking over the point

Your system's default web browser application will open, pointing to a web page displaying the house image and its attributes.



Description of 454697

MLS®#: 454697
$349,000
2 Storey
CENTREPOINTE (7607)
4 Bedrooms
3 Bathrooms
1 Ensuite
A/C: Central Air
Heat: Natural Gas
Lot: 49.90ftx109.90d Imp

Document: Done

tributes of Geocd_house

Mls_id	Address						
454697	8 Cedar Grove Cr	[illegible]	2 Storey	CENTREPOINTE	4	3	http://www.nrcan.gc.ca/~tkrali
457370	20 Palsen St	169900	Split Level	MEADOWLANDS	5	2	http://www.nrcan.gc.ca/~tkrali
459427	20 Redenda Cr	528000	2 Storey	CENTREPOINTE	4	4	http://www.nrcan.gc.ca/~tkrali
460178	9 Vanson Av	165000	Bungalow	FISHER	5	3	http://www.nrcan.gc.ca/~tkrali
460337	22 Kingsbury Av	368000	2 Storey	CRESTVIEW	5	4	http://www.nrcan.gc.ca/~tkrali
461597	84 Starwood Rd	139500	Semi-Bungalow	ST	3	2	http://www.nrcan.gc.ca/~tkrali
462146	94 David Dr	219900	2 Storey	MEADOWLANDS	3	3	http://www.nrcan.gc.ca/~tkrali
462441	28 Lyall St	159900	Bungalow	PARKWOOD	3	3	http://www.nrcan.gc.ca/~tkrali
462596	17 Oakview Av	249900	2 Storey	CRESTVIEW	4	3	http://www.nrcan.gc.ca/~tkrali

4.1.8 Using the `GetStatistics` Popup Item

Selecting this option from **`Popup | GetStatistics`** will send output a count and average of houses selected from the View. If you select the schools theme as active, you will receive a listing of the number of schools, and type, in the area bounded by your selection.

- Select the area you wish to gain more information on by applying the marquee selection tool over the desired area

- Click **`Popup | GetStatistics`**

A message box will appear with the information.

5

Upgrades

This section addresses the installation of upgrades to GEOHome and removal of current GEOHome releases.

5.1 Installing Upgrades to GEOHome

Following installation of GEOHome, it is possible that upgrades, enhancements or bug-fixes to the system may be delivered to the customer. These are sent on a mutually agreed format between the customer and GEOHome. Instructions on installing and testing the patches will accompany the software.

Upgrades contain the following phases:

- **Installation**: includes the necessary software, data and scripts as well as instructions and scripts to perform the installation.
- **Testing**: includes a test environment setup and testing procedures to make sure that the upgrade works properly.
- **Moving to Production**: after the installation and testing has proven successful, instructions and scripts are provided to upgrade to the new production version.

5.1.1 Upgrading GEOHome

The source code may be delivered as a patch to the customer. Details on the exact nature of the patch, instructions on extracting the patch from media, and testing the software will accompany.

6

Maintenance

6.1 File Corruption / Data Recovery

Should any file I/O problems result in file or data corruption, the GEOHome release CDROM should be used to reinstall suspected corrupted components or data. Please apply the most current release data to recover any corrupted / deleted components.

A

Problem Reporting

A1. Problem Report Form

Please report any problems to your GEOHome contact, by fax or email. A sample problem-reporting template follows.

Figure A-1 – Sample Problem Reporting Template

Problem	
Data	
Submitted by	
Category	
Description	

B

GEOHome Distribution Content Listing

B1. Contents

The following list lists the contents of the GEOHome distribution v1.0.

Table B-1: CDROM Distribution Content Listing

File	Description
./doc/OIOM_1_0.doc	This document
./house_data	House image and text files, organized by MLS number
./house_data/454697	
./house_data/454697/454697.jpg	
./house_data/454697/454697.txt	
./house_data/457370	
./house_data/457370/457370.jpg	
./house_data/457370/457370.txt	
./house_data/459427	

./house_data/459427/459427.jpg	
./house_data/459427/459427.txt	
./house_data/460178	
./house_data/460178/460178.jpg	
./house_data/460178/460178.txt	
./house_data/460337	
./house_data/460337/460337.jpg	
./house_data/460337/460337.txt	
./house_data/461597	
./house_data/461597/461597.jpg	
./house_data/461597/461597.txt	
./house_data/462146	
./house_data/462146/462146.jpg	
./house_data/462146/462146.txt	
./house_data/462441	
./house_data/462441/462441.jpg	
./house_data/462441/462441.txt	
./house_data/462596	
./house_data/462596/462596.jpg	
./house_data/462596/462596.txt	
./house_data/462711	
./house_data/462711/462711.jpg	
./house_data/462711/462711.txt	
./house_data/462762	

./house_data/462762/462762.jpg	
./house_data/462762/462762.txt	
./house_data/463180	
./house_data/463180/463180.jpg	
./house_data/463180/463180.txt	
./house_data/463193	
./house_data/463193/463193.jpg	
./house_data/463193/463193.txt	
./house_data/463363	
./house_data/463363/463363.jpg	
./house_data/463363/463363.txt	
./house_data/463676	
./house_data/463676/463676.jpg	
./house_data/463676/463676.txt	
./house_data/463940	
./house_data/463940/463940.jpg	
./house_data/463940/463940.txt	
./house_data/463992	
./house_data/463992/463992.jpg	
./house_data/463992/463992.txt	
./house_data/464318	
./house_data/464318/464318.jpg	
./house_data/464318/464318.txt	
./house_data/464408	

./house_data/464408/464408.jpg	
./house_data/464408/464408.txt	
./house_data/464445	
./house_data/464445/464445.jpg	
./house_data/464445/464445.txt	
./house_data/464522	
./house_data/464522/464522.jpg	
./house_data/464522/464522.txt	
./house_data/464623	
./house_data/464623/464623.jpg	
./house_data/464623/464623.txt	
./house_data/464870	
./house_data/464870/464870.jpg	
./house_data/464870/464870.txt	
./house_data/465008	
./house_data/465008/465008.jpg	
./house_data/465008/465008.txt	
./house_data/465171	
./house_data/465171/465171.jpg	
./house_data/465171/465171.txt	
./house_data/465211	
./house_data/465211/465211.jpg	
./house_data/465211/465211.txt	
./house_data/findhouse.cgi	CGI Web application for **HotlinkToWebPage**

	tool
./house_data/formatHouseData.pl	Perl script to generate house data tables
./house_data/maison.txt	Output sample of formatHouseData.pl
./house_data/noimage	
./house_data/noimage/464547	Sample house records without imagery
./house_data/noimage/464547/464547.txt	
./house_data/noimage/465364	
./house_data/noimage/465364/465364.txt	
./house_data/noimage/465434	
./house_data/noimage/465434/465434.txt	
./meta	Metadata implementation
./meta/metadata.xml	Extensible Markup Language Document
./meta/metadata.xsl	XML Stylesheet / Parser
./myfile.txt	ls -lR of this listing
./release	GEOHome tools begin
./release/bnd_region.dbf	Basemap boundary data
./release/bnd_region.sbn	
./release/bnd_region.sbx	
./release/bnd_region.shp	
./release/bnd_region.shx	
./release/busroute_polyline.dbf	Digitized busroute data
./release/busroute_polyline.shp	
./release/busroute_polyline.shx	

./release/geocd_houses.dbf	
./release/geocd_houses.shp	
./release/geocd_houses.shx	
./release/geocd_landmarks.dbf	Geocoded landmarks
./release/geocd_landmarks.shp	
./release/geocd_landmarks.shx	
./release/geocd_schools.dbf	Geocoded schools
./release/geocd_schools.sbn	
./release/geocd_schools.sbx	
./release/geocd_schools.shp	
./release/geocd_schools.shx	
./release/landmarks.txt	Text table input
./release/MAISON2.TXT	Text table input
./release/NEPEAN_0.DBF	Cleaned RMOC Street network
./release/NEPEAN_0.SBN	
./release/NEPEAN_0.SBX	
./release/NEPEAN_0.SHP	
./release/NEPEAN_0.SHX	
./release/release.apr	Main project file
./scripts	
Avenue script directory, named by logical function	
./scripts/dialog.aboutbox.ded	
./scripts/dialog.aboutbox.gotowebsite_lbl.click.ave	
./scripts/dialog.aboutbox.gotowebsite_lbl.update.ave	

./scripts/dialog.aboutbox.main.ave
./scripts/dialog.aboutbox.ok_lbl.click.ave
./scripts/dialog.aboutbox.ok_lbl.update.ave
./scripts/dialog.aboutbox.open.ave
./scripts/dialog.infobox.cancel_lbl.click.ave
./scripts/dialog.infobox.cancel_lbl.update.ave
./scripts/dialog.infobox.ded
./scripts/dialog.infobox.main.ave
./scripts/dialog.infobox.open.ave
./scripts/dialog.infobox.submit_lbl.click.ave
./scripts/dialog.infobox.submit_lbl.update.ave
./scripts/dialog.queryhomes.area_cbx.select.ave
./scripts/dialog.queryhomes.area_cbx.update.ave
./scripts/dialog.queryhomes.cancel_lbl.click.ave
./scripts/dialog.queryhomes.cancel_lbl.update.ave
./scripts/dialog.queryhomes.ded
./scripts/dialog.queryhomes.main.ave
./scripts/dialog.queryhomes.numbaths_cbx.select.ave
./scripts/dialog.queryhomes.numbaths_cbx.update.ave
./scripts/dialog.queryhomes.numbeds_cbx.select.ave
./scripts/dialog.queryhomes.numbeds_cbx.update.ave
./scripts/dialog.queryhomes.open.ave
./scripts/dialog.queryhomes.pricemax_cbx.select.ave
./scripts/dialog.queryhomes.pricemax_cbx.update.ave
./scripts/dialog.queryhomes.pricemin_cbx.select.ave
./scripts/dialog.queryhomes.pricemin_cbx.update.ave

./scripts/dialog.queryhomes.submit_lbl.click.ave
./scripts/dialog.queryhomes.submit_lbl.update.ave
./scripts/dialog.queryhomes.type_cbx.select.ave
./scripts/dialog.queryhomes.type_cbx.update.ave
./scripts/project.startupgeohome.ave
./scripts/theme.exportdata.getdata.ave
./scripts/theme.exporttoexcel.putdata.ave
./scripts/view.hotlinktowebpage.ave
./scripts/view.makeatts.ave

C

GEOHome v1.0 Source Code

C1. The following section comprises GEOHome v1.0:

- Avenue code
- Perl formatting code
- Perl CGI application
- XML metadata

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Project.StartupGEOHome
' Script Description: Startup program for GEOHome, welcome message and option to start
'                     the GEOHome wizard
' Usage:              As startup script to GEOHome project
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' variables

today = Date.Now
myHdr = "GEOHome v1.0 Startup: " + today.AsString
QueryHomesWizard = "Dialog.QueryHomes.Main"

' welcome user, give option for wizard or default application

if(MsgBox.YesNo("Welcome GEOHome v1.0." + NL + "Start with the GEOHome Wizard?", myHdr, True)) then
  if (QueryHomesWizard = nil) then
    MsgBox.Error("Can't find script: " + QueryHomesWizard, "FindScript")
    exit
  else
    av.Run(QueryHomesWizard, nil)
  end
else
  exit
end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.AboutBox.Main
' Script Description: Wrapper; Initiates Dialog Box for project About Box
' Usage:              As Menu item under GEOHome | About GEOHome, as Shutdown script
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20-March-2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''


' Initialize the Dialog

av.FindDialog("AboutBox").Open

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.AboutBox.Open
' Script Description: Declares and updates specified controls in dialog.
' Usage:              Called after Dialog.ExportToExcel.Main
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20-March-2000
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' declare and update all controls in Dialog::ExportToExcelMain

' eg below add when done

icnInfoBoxImage = self.FindByName("AboutBox.Image_icn")
icnInfoBoxImage.Update

lblAboutBoxGoToWebsite = self.FindByName("AboutBox.GoToWebsite_lbl")
lblAboutBoxGoToWebsite.Update

tlblAboutBoxMainTitle = self.FindByName("AboutBox.MainTitle_tlbl")
tlblAboutBoxMainTitle.Update

lblAboutBoxOK = self.FindByName("AboutBox.OK_lbl")
lblAboutBoxOK.Update

icnAboutBoxDisclosure = self.FindByName("AboutBox.Disclosure_icn")
icnAboutBoxDisclosure.Update

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        AboutBox.OK_lbl.Click
' Script Description: OK Button Control
' Usage:              As label button under AboutBox Dialog
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' close the dialog box


self.GetDialog.Close

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.AboutBox.OK_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.AboutBox.Submit_lbl.Click)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' always true, always available


self.SetEnabled(TRUE)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.AboutBox.GoToWebSite_lbl.Click
' Script Description: Submit Button Control, passes user selection to browser
' Usage:              As label button under AboutBox Dialog
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' set self and header

self.SetEnabled(TRUE)

' get website value, embedded in tag element of control, pass it to Netscape

ButtonTag = self.GetDialog.FindByName("AboutBox.GoToWebSite_lbl").GetTag

if (ButtonTag = nil) then
  MsgBox.Info("No selection", "")
  self.GetDialog.Close
'end

else
  'MsgBox.Info("URL found", "")
  System.Execute("C:\Program Files\Netscape\Communicator\Program\netscape.exe " + ButtonTag.AsString)
end

self.GetDialog.Close
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.AboutBox.GoToWebsite_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.AboutBox.Submit_lbl.Click)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' always true, always available


self.SetEnabled(TRUE)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Main
' Script Description: Wrapper; Initiates Dialog Box to InfoBox
' Usage:              As Menu item under GEOHome | InfoBox
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' Initialize the Dialog

av.FindDialog("InfoBox").Open

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Open
' Script Description: Declares and updates specified controls in dialog.
'                     Sets field values in accordance to user selection.
' Usage:              Called after Dialog.InfoBox.Main
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
' T. Kralidis   30-March-2000  Implemented for GEOHome
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' declare and update all controls in Dialog::ExportToExcelMain

icnInfoBoxImage = self.FindByName("InfoBox.Image_icn")
icnInfoBoxImage.Update

cplInfoBoxPanel = self.FindByName("InfoBox.Panel_cpl")
cplInfoBoxPanel.Update

rbtnInfoBoxMortgageCalculator = self.FindByName("InfoBox.MortgageCalculator_rbtn")
rbtnInfoBoxMortgageCalculator.Update

rbtnInfoBoxLocalNews = self.FindByName("InfoBox.LocalNews_rbtn")
rbtnInfoBoxLocalNews.Update

rbtnInfoBoxLocalGovernment = self.FindByName("InfoBox.LocalGovernment_rbtn")
rbtnInfoBoxLocalGovernment.Update

rbtnInfoBoxCityNews = self.FindByName("InfoBox.CityNews_rbtn")
rbtnInfoBoxCityNews.Update

lbl_InfoBoxSubmit = self.FindByName("InfoBox.Submit_lbl")
lbl_InfoBoxSubmit.Update

lbl_InfoBoxCancel = self.FindByName("InfoBox.Cancel_lbl")
lbl_InfoBoxCancel.Update

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Submit_lbl.Click
' Script Description: Submit Button Control, passes user selection to browser
' Usage:              As label button under InfoBox Dialog
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author       Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' set self and header

self.SetEnabled(TRUE)

myHdr = "InfoBox"

' get user radio button selection from control panel

cpl = self.GetDialog.FindByName("InfoBox.Panel_cpl")

if (cpl = nil) then
  MsgBox.Info("Can't find dialogue", myHdr)
  self.GetDialog.Close
end

cplChoice = cpl.GetSelected

if (cplChoice = nil) then
  MsgBox.Info("No selection", myHdr)
  self.GetDialog.Close
end

' get website value, embedded in tag element of control, pass it to Netscape

cplChoiceTag = cplChoice.GetTag

if (cplChoiceTag = nil) then
  MsgBox.Info("No URL", myHdr)
  self.GetDialog.Close

else
  'MsgBox.Info("URL found", myHdr)
  System.Execute("C:\Program Files\Netscape\Communicator\Program\netscape.exe " + cplChoiceTag.AsString)
end

self.GetDialog.Close

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Submit_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.InfoBox.Submit_lbl.Click)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''


' always true, always available


self.SetEnabled(TRUE)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Cancel_lbl.Click
' Script Description: Cancel Button Control
' Usage:              As label button under InfoBox Dialog
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author       Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' close the dialog box


self.GetDialog.Close

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.InfoBox.Cancel_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.InfoBox.Submit_lbl.Click)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' always true, always available


self.SetEnabled(TRUE)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Main
' Script Description: Wrapper; Initiates Dialog Box to Export Fields to Micro$oft Excel
' Usage:              As Popup under View Menu (Export Dialog).
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author       Date          Modifications
' T. Kralidis  28-Nov-1999   Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' Initialize the Dialog


av.FindDialog("QueryHomes").Open

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Open
' Script Description: Declares and updates specified controls in dialog.
'                     Sets field values in accordance to user selection.
' Usage:              Called after Dialog.ExportToExcel.Main
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   28-Nov-1999   Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' declare and update all controls in Dialog::ExportToExcelMain

tlblQueryHomesPriceMin = self.FindByName("QueryHomes.PriceMin_tlbl")
tlblQueryHomesPriceMin.Update

tlblQueryHomesType = self.FindByName("QueryHomes.Type_tlbl")
tlblQueryHomesType.Update

tlblQueryHomesArea = self.FindByName("QueryHomes.Area_tlbl")
tlblQueryHomesArea.Update

tlblQueryHomesNumBaths = self.FindByName("QueryHomes.NumBaths_tlbl")
tlblQueryHomesNumBaths.Update

tlblQueryHomesNumBeds = self.FindByName("QueryHomes.NumBeds_tlbl")
tlblQueryHomesNumBeds.Update

lblQueryHomesSubmit = self.FindByname("QueryHomes.Submit_lbl")
lblQueryHomesSubmit.Update

cbxQueryHomesPriceMin = self.FindByName("QueryHomes.PriceMin_cbx")
cbxQueryHomesPriceMin.Update

cbxQueryHomesPriceMax = self.FindByName("QueryHomes.PriceMax_cbx")
cbxQueryHomesPriceMax.Update

tlblQueryHomesPriceMax = self.FindByName("QueryHomes.PriceMax_tlbl")
tlblQueryHomesPriceMax.Update

cbxQueryHomesArea = self.FindByName("QueryHomes.Area_cbx")
cbxQueryHomesArea.Update

cbxQueryHomesType = self.FindByName("QueryHomes.Type_cbx")
cbxQueryHomesType.Update

cbxQueryHomesNumBeds = self.FindByName("QueryHomes.NumBeds_cbx")
cbxQueryHomesNumBeds.Update

cbxQueryHomesNumBaths = self.FindByName("QueryHomes.NumBaths_cbx")
cbxQueryHomesNumBaths.Update

icnQueryHomesImage = self.FindByName("QueryHomes.Image_icn")
icnQueryHomesImage.Update

cbxQueryHomesExportCheck = self.FindByName("QueryHomes.ExportCheck_cbx")
cbxQueryHomesExportCheck.Update
```

```

' set change updates upon user selection

'cbxThemes.SetListeners ({lbxChooseFields})

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.PriceMin_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.PriceMin_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(4)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.PriceMax_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.PriceMax_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(4)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Area_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Area_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author       Date          Modifications
' T. Kralidis  28-Nov-1999   Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(1)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Type_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomesType_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(0)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.NumBeds_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.NumBeds_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(2)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.NumBaths_cbx.Select
' Script Description: Broadcast update to listeners identified in Dialog.QueryHomes.Open
' Usage:              Blind update
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   28-Nov-1999   Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' update changes

self.BroadcastUpdate

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.NumBaths_cbx.Update
' Script Description: Returns available themes to Dialog Box QueryHomes
' Usage:              Called after Dialog.QueryHomes.Open
' Author:             Tom Kralidis
' Created:            28-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   28-Nov-1999    Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

self.SetEnabled(TRUE)

theTypeList = av.run("View.MakeAtts", "").Get(3)

'MsgBox.MultiListAsString(theTypeList, "", "")

' return variables to dialog box

self.DefineFromList(theTypeList)

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Submit_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.QueryHomes.Submit_lbl.Click)
' Author:             Tom Kralidis
' Created:            30-Nov-1999
' Changes:
'
' Author        Date          Modifications
' T. Kralidis   30-Nov-1999    Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' always true, always available


self.SetEnabled(TRUE)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Submit_lbl.Click
' Script Description: Gets user selection from Dialog box controls and searches for houses in selection
' Usage:              As control in Dialog Box QueryHomes
' Author:             Tom Kralidis
' Created:            30-Nov-1999
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   30-Nov-1999    Initial Implementation
' T. Kralidis   30-March-2000  Updated for GEOHome
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' set self


self.SetEnabled(TRUE)


'set default header


myHdr     = "QueryHomes"
viewname  = "Nepean, Ontario"
themename = "Geocd_houses.shp"

theView = av.GetProject.FindDoc(viewname)
if (theView = nil) then
  MsgBox.Info("Can't find view: " + viewname.AsString, myHdr)
  self.GetDialog.Close
  exit
end

theTheme = theView.FindTheme(themename)
if (theTheme = nil) then
  MsgBox.Info("Can't find theme: " + themename.AsString, myHdr)
  self.GetDialog.Close
  exit
end

theFTab = theTheme.GetFTab
if (theFTab = nil) then
  MsgBox.Info("No FTab", myHdr)
  self.GetDialog.Close
  exit
end

theSelection = theFTab.GetSelection

selCount = theSelection.Count

if (selCount <> 0) then
   tmpvar = 6
'  MsgBox.Info("Selection", myHdr)
else
  'MsgBox.Info("No selection", myHdr)
  theSelection.SetAll
end

```

```
' get user entered stuff from control boxes

minPricetmp = self.GetDialog.FindByName("QueryHomes.PriceMin_cbx")
minPrice = minPricetmp.GetSelection

maxPricetmp = self.GetDialog.FindByName("QueryHomes.PriceMax_cbx")
maxPrice = maxPricetmp.GetSelection

areatmp = self.GetDialog.FindByName("QueryHomes.Area_cbx")
Area = areatmp.GetSelection

typetmp = self.GetDialog.FindByName("QueryHomes.Type_cbx")
Type = typetmp.GetSelection

numbedstmp = self.GetDialog.FindByName("QueryHomes.NumBeds_cbx")
Numbeds = numbedstmp.GetSelection

numbathstmp = self.GetDialog.FindByName("QueryHomes.NumBaths_cbx")
Numbaths = numbathstmp.GetSelection

chkbx = self.GetDialog.FindByName("QueryHomes.ExportCheck_cbx")

' we now have the following variables to query:
' minPrice
' maxPrice
' area
' type
' numbeds
' numbaths

if (minPrice <> "> 250000") then
  if (minPrice > maxPrice) then
    MsgBox.Info("Invalid price range", myHdr)
    self.GetDialog.Close
    exit
  end
  myQueryString = "[Price] > " + minPrice.AsString
    theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

if (maxPrice <> "> 250000") then
  myQueryString = "[Price] < " + maxPrice.AsString
    theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

if (Area <> "All") then
  myQueryString = "[Area] =  " + Area.Quote
  theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

if (Type <> "All") then
  myQueryString = "[Type] =  " + Type.Quote
  theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

if (Numbeds <> "All") then
  myQueryString = "[Numbeds] =  " + Numbeds.AsString
  theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

if (Numbaths <> "All") then
  myQueryString = "[Numbaths] =  " + Numbaths.AsString
  theFTab.Query (myQueryString, theSelection, #VTAB_SELTYPE_AND)
  theFTab.UpdateSelection
end

' query done, if nil, die, else continue and check for export toggle key

mytmpBitMap = theFTab.GetSelection.Count

if (mytmpBitMap = 0) then
  MsgBox.Info("No records found", myHdr)
  self.GetDialog.Close
  exit
end

MsgBox.Info("Query matches highlighted.  Use the hotlink key for more information", myHdr)

if (chkbx.IsSelected) then
  MsgBox.Info("Exporting data.", myHdr)
  av.Run("Theme.ExportData.GetData", nil) ' call exportdata script
  self.GetDialog.Close
  exit
end

' qc line message box
'MsgBox.Info(minPrice.AsString + " " + maxPrice.AsString + " " + area.AsString + " " + type.AsString + " " + numbeds.AsString + " " + numbaths.AsString, "")

self.GetDialog.Close

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Cancel_lbl.Click
' Script Description: Cancel Button Control
' Usage:              As label button under QueryHomes Dialog
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' close the dialog box


self.GetDialog.Close

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Dialog.QueryHomes.Cancel_lbl.Update
' Script Description: Enables the Click control verification
' Usage:              Click Button (Dialog.QueryHomes.Cancel_lbl.Click)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' always true, always available


self.SetEnabled(TRUE)

' end
```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Theme.ExportData.GetData
' Script Description: Gets user selection and passes parameters to Excel processing script (Theme.ExportToExcel.PutData)
' Usage:              As Popup under View Menu (Save To Excel).
' Language:           Avenue
' Returned Objects:   theList
' Author:             Tom Kralidis
' Created:            20-March-2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' get theme and set default header

myHdr = "Export to Excel"

myTheme = av.GetProject.FindDoc("Nepean, Ontario").FindTheme("Geocd_houses.shp")

if (myTheme = nil) then
  MsgBox.Info("Error, check for View and Theme.", myHdr)
  exit
end


' Get table information for later use

myFTab = myTheme.GetFTab
tableName = myFTab.GetName
theFields = myFTab.GetFields
theSelection = myFTab.GetSelection

'if (theSelection = nil) then
'  MsgBox.Info("no data", myHdr)
'  exit
'end

' following chunk taken from Table.Export - ESRI system script
' set up export list

formats = {"dBASE", "INFO", "Delimited Text", "Excel"}

format = MsgBox.ListAsString(formats, "Export Format:", "Export Table")
if (format = "dBASE") then
  theClass = DBASE
  theFilter = "*.dbf"
  theExt = "dbf"
elseif (format = "Delimited Text") then
  theClass = DTXT
  theFilter = "*.txt"
  theExt = "txt"
elseif (format = "INFO") then
  theClass = INFO
  theFilter = "arcdr9"
  theExt = ""
elseif (format = "Excel") then
  ' Allow user to select fields
  fieldList = MsgBox.MultiList(theFields,"Choose fields to write to Excel:", myHdr)
  if (fieldList = Nil) then
    MsgBox.Info("No fields chosen" + NL +  "Exiting.", myHdr)
    exit
  end

  ' put derived values to a passeable list

  theList = List.Make

  theList.Add(myHdr)
  theList.Add(myFtab)
  theList.Add(tableName)
  theList.Add(theSelection)
  theList.Add(fieldList)

  av.Run("Theme.ExportToExcel.PutData",theList)
  exit
else
  return nil
end

' write to other output data format

theFileName=FileDialog.Put(av.GetProject.MakeFileName("table", theExt),
                 theFilter,"Export Table")
if (theFileName = NIL) then return nil end

'theFTab = theTable.GetFTab
ext     = theFileName.GetExtension
if (((theClass.IsSubclassOf(DTXT)) or (theClass.IsSubClassOf(DBASE))) and (ext <> theExt)) then
  theFileName.SetExtension(theExt)
end

if (myFTab.GetSelection.Count=0) then
  myFTab.Export(theFileName, theClass, FALSE)
  av.ShowMsg("All records written to"++theFileName.GetBaseName)
else
  myFTab.Export(theFileName, theClass, TRUE)
  av.ShowMsg("Selected records written to"++theFileName.GetBaseName)
end
if ((System.GetOS = #SYSTEM_OS_MAC) and ((format = "INFO").not)) then
  Script.Make("MacClass.SetDocInfo(SELF, Table)").DoIt(theFileName)
end

exit
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        Theme.ExportToExcel.PutData
' Script Description: generic routine to write selection to Micro$oft Excel spreadsheet
' Usage:              called from other scripts (Theme.ExportToExcel.GetData)
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20-March-2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

' pick up parameters from incoming request script

myHdr = self.Get(0)
myFTab = self.Get(1)
tableName = self.Get(2)
theSelection = self.Get(3)
fieldList = self.Get(4)


' test

System.Execute("C:\Program Files\Microsoft Office\Office\Excel.exe")

' Create the ArcView DDEClient to speak to Excel


systemClient = DDEClient.Make("Excel", "System")

if (systemClient.HasError) then
  MsgBox.Error(systemClient.GetErrorMsg + ".  Open your Excel Application", myHdr)
  exit
end


' Create the new Excel worksheet


systemClient.Execute("[NEW(1,0,FALSE)]")


' Get the name of the new worksheet.  Selection is an Excel item supported for the System topic.


selection = systemClient.Request("Selection")
spreadsheet = selection.Left(selection.IndexOf("!"))


' Ensure R1C1 format


systemClient.Execute("[Workspace(,,TRUE)]")
systemClient.Close


' Open a new conversation with the Excel spreadsheet as the topic
```

```


ssClient = ddeClient.Make("Excel", spreadsheet)


' Get table information for later use


' Write the table name to the spreadsheet


row    = 1
column = 1
ssClient.Poke("R"+row.AsString+"C"+column.AsString, tableName)



' Write chosen field names to the spreadsheet


row    = 2
column = 0
for each f in fieldList
  column = column + 1
  ssClient.Poke("R"+row.AsString+"C"+column.AsString, f.GetName)
end



' Write the values for selected features to spreadsheet


for each thingy in theSelection
  row    = row + 1
  column = 0
  for each f in fieldList
    column = column + 1
     dataString = myFTab.ReturnValueString(f, thingy)
    ssClient.Poke("R"+row.AsString+"C"+column.AsString, dataString)
  end
end
ssClient.Close

MsgBox.Info("Data written.  Check your Excel application for results.", myHdr)

' end
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        View.HotlinkToWebPage
' Script Description: Points user to GEOHome website for supplementary house information
' Usage:              Executed upon user click using the hotlink tool
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''


' default window header

myHdr = "HotLink to the Internet"

' Test Micro$oft Operating system type, setup DLL's for appropriate system.

if (System.GetOSVariant = #SYSTEM_OSVARIANT_MSWNT) then
  dllShell32 = DLL.Make("C:\winnt\system32\shell32.dll".AsFileName)
  dllUser32  = DLL.Make("C:\winnt\system32\user32.dll".AsFileName)
elseif (System.GetOSVariant = #SYSTEM_OSVARIANT_MSW95) then
  dllShell32 = DLL.Make("C:\windows\system\shell32.dll".AsFileName)
  dllUser32  = DLL.Make("C:\windows\system\user32.dll".AsFileName)
else
  MsgBox.Info("Looks like you're not using Windows, good choice!!", myHdr)
  exit
end
if ((dllShell32 = nil) or (dllUser32 = nil)) then
  MsgBox.Error("Can't find required DLL's.  Check your setup.", myHdr)
  exit
end


' setup Win32API to talk with Avenue


dpGetActiveWindow = DLLProc.Make(dllUser32, "GetActiveWindow",#DLLPROC_TYPE_INT32, {})

dpShellExecute = DLLProc.Make
                (
                 dllShell32, "ShellExecuteA",
                 #DLLPROC_TYPE_INT32,
                 {
                  #DLLPROC_TYPE_INT32,
                  #DLLPROC_TYPE_STR,
                  #DLLPROC_TYPE_STR,
                  #DLLPROC_TYPE_STR,
                  #DLLPROC_TYPE_STR,
                  #DLLPROC_TYPE_INT32
                 }
                )



' Get window handle of ArcView window
```

```


activeWin = DLL.GetAVWindowHandle


' Get the URL off clicked area of theme


hotLink = SELF


' Send info to default browser


hotLinkToBrowser = dpShellExecute.Call({ActiveWin, "Open", Hotlink, myHdr, FileName.GetCWD.AsString, 1})

if (hotLinkToBrowser <= 32) then
  MsgBox.Warning("Hotlink failed", myHdr)
end

' end of script

```

```
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        View.MakeAtts
' Script Description: Compiles and sends list of lists to QueryHomes dialog box
' Usage:              Called as routine within QueryHomes dialog box
' Language:           Avenue
' Returned Objects:   myFinalList
' Author:             Tom Kralidis
' Created:            20-March-2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
'''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
' get data

myView = av.FindDoc("Nepean, Ontario")
myTheme = myView.FindTheme("Geocd_houses.shp")
myFTab = myTheme.GetFTab

' make dummy price ranges

myPriceList = List.Make

myFakePrice = 100000

while (myFakePrice < 250000)
  myPriceList.Add(myFakePrice)
  myFakePrice = myFakePrice + 50000
end

myPriceList.Add(" > 250000")

'MsgBox.MultiListAsString(myPriceList, "", "")

' get all fields and sort

myTypeFieldList     = myFTab.FindField("Type")
myAreaFieldList     = myFTab.FindField("Area")
myNumBedsFieldList  = myFTab.FindField("Numbeds")
myNumBathsFieldList = myFTab.FindField("Numbaths")

myTypeList     = {}
myAreaList     = {}
myNumBedsList  = {}
myNumBathsList = {}


for each record in myFTab
  myTypeList.Add(myFTab.ReturnValue(myTypeFieldList,record))
  myAreaList.Add(myFTab.ReturnValue(myAreaFieldList,record))
  myNumBedsList.Add(myFTab.ReturnValue(myNumBedsFieldList,record))
  myNumBathsList.Add(myFTab.ReturnValue(myNumBathsFieldList,record))
end

' clean up arrays, removing duplicates and sorting

myTypeList.RemoveDuplicates
myTypeList.Add("All")
myTypeList.Sort(True)
```

```

myAreaList.RemoveDuplicates
myAreaList.Add("All")
myAreaList.Sort(True)

myNumBedsList.RemoveDuplicates
myNumBedsList.Sort(True)
myNumBedsList.Add("All")

myNumBathsList.RemoveDuplicates
myNumBathsList.Sort(True)
myNumBathsList.Add("All")

myFinalList = List.Make

myFinalList.Add(myTypeList)
myFinalList.Add(myAreaList)
myFinalList.Add(myNumBedsList)
myFinalList.Add(myNumBathsList)
myFinalList.Add(myPriceList)

return myFinalList
```

```
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'
' Script Name:        View.Theme.GetStats
' Script Description: Reports information found within selected area of user marquee select
' Usage:              As popup upon user selection
' Language:           Avenue
' Returned Objects:   none
' Author:             Tom Kralidis
' Created:            20 March 2000
' Changes:
'
' Author        Date           Modifications
' T. Kralidis   20-March-2000  Initial Implementation
'
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''

myHdr = "Average Price of Selected Area"

myProj = av.GetProject
myView = myProj.FindDoc("Nepean, Ontario")

myHouseTheme = myView.FindTheme("Geocd_houses.shp")
myHouseTheme.SetVisible(True)
myHouseTheme.SetActive(True)
myHouseFTab = myHouseTheme.GetFTab
theBitmap = myHouseFTab.GetSelection

myHouseFieldList  = myHouseFTab.GetFields
myHouseField = myHouseFTab.FindField("Price")

totalPrice = 0
houseCount = 0

for each i in theBitmap
  homePrice = myHouseFTab.ReturnValue(myHouseField , i)
  totalPrice = totalPrice + homePrice
  'MsgBox.Info(homePrice.asString,myHdr) ' debug
  houseCount = houseCount + 1
end

avPrice = totalPrice / houseCount

if (houseCount = 0) then
  'MsgBox.Info("No Selection", myHdr)
  exit
end

MsgBox.Info("Homes: " + houseCount.AsString + NL + "Average price: $" + avPrice.AsString, myHdr)

' temp devel for theme on them selection

mySchoolTheme = myView.FindTheme("Geocd_schools.shp")
'mySchoolTheme.SetActive(True)
'mySchoolTheme.CanSelect
'mySchoolTheme.SelectByTheme(myHouseTheme, #FTAB_RELTYPE_ISWITHINDISTANCEOF, 0.5,
#VTAB_SELTYPE_NEW)

mySchoolFTab = mySchoolTheme.GetFTab

mySchoolFieldList  = mySchoolFTab.GetFields
mySchoolField = mySchoolFTab.FindField("Type")
```

```

elemcount    = 0
seccount     = 0
totalschools = 0

for each i in mySchoolFTab.GetSelection
  tmptype = mySchoolFTab.ReturnValue(mySchoolField , i)
  if (tmptype = "Elementary") then
    elemcount = elemcount + 1
  elseif (tmptype = "Secondary") then
    seccount = seccount + 1
  end
  totalschools = totalschools + 1
end

MsgBox.Info("Secondary Schools : " + seccount.AsString + NL + "Elementary Schools: " + elemcount.AsString,myHdr) ' debug

mySchoolTheme.SetActive(False)

' end
```

```
#!/public/bin/perl -w

################################################################################
# Filename: formatHouseData.pl
# Version:  1.001
# Author:   Tom Kralidis
# Date:     29/01/00
# Project:  GEOHome v1.0
# Purpose:  Extracts data from input house text files into tab-delimited
#           text file, for import to GEOHome component.
# Language: Perl
# Modules:  None
# Usage:    formatHouseData.pl in desired input data directory
# Misc:     Consult technical documentation for specifications / requirements
#
# Change log:
#
# Author        Date           Changes
# T. Kralidis   14-Jan-2000    Initial Implementation.
#
################################################################################

# declare variables

$fileCount = 0;
$. = 0;

# open and write fields to output text file

open(CDT, ">maison.txt") || die "Yikes0: $!\n";
print CDT "mls_id,price,type,area,numBeds,numBaths,hotLink\n";

# open current directory and list house data to be processed

opendir(THISDIR, ".") || die "Yikes1: $!\n";
@houseFiles = sort grep(/^\d{6}\.txt$/, readdir(THISDIR));
closedir(THISDIR);

# loop through files, extracting data needed

foreach(@houseFiles)
{
  open(FILE, "$_") or die "YikesFilePeruseLoop:  $!\n";

  # extract data

  do { $mlsnum = <FILE> } until $. == 3 || eof;
  do { $price = <FILE> } until $. == 4 || eof;
  do { $type  = <FILE> } until $. == 5 || eof;
  do { $area  = <FILE> } until $. == 6 || eof;
  do { $beds  = <FILE> } until $. == 7 || eof;
  do { $baths  = <FILE> } until $. == 8 || eof;

  # remove null padding

  $mlsnum = $1 if $mlsnum =~ /\#\:\s(\d+)/;
  $price = $1 . $2 if $price =~ /\$(\d+)\,(\d{3})/;
  $type = $1 if $type =~ /Image\]\s(.*)$/;
  $area = $1 if $area =~ /Image\]\s(\w+)/;
  $beds = $1 if $beds =~ /(\d)/;
  $baths = $1 if $baths =~ /(\d)/;
  # print to output filehandle

  $hotlink = "http\:\/\/www\.nrcan\.gc\.ca\/\~tkralidi\/cgi\-bin\/findhouse\.cgi\?$mlsnum";

  print CDT "$mlsnum,$price,$type,$area,$beds,$baths,$hotlink\n";

  close(FILE);
  $fileCount++;
}

close(CDT);

print "$fileCount files processed.\nDone\n";

exit(0);
```

```
#!/bin/perl -w

################################################################################
# Filename: findhouse.cgi
# Version:  1.001
# Author:   Tom Kralidis
# Date:     25/02/00
# Project:  GEOHome v1.0
# Purpose:  Displays house information from user entered query
# Language: Perl
# Modules:  CGI.pm
# Usage:    off hotlink tool within GEOHome extension
# Misc:     Consult technical documentation for specifications / requirements
#
# Change log:
#
# Author        Date           Changes
# T. Kralidis   25-Feb-2000    Initial Implementation.
#
################################################################################

use CGI;
use CGI::Carp qw(fatalsToBrowser);

# construct new CGI object, pass it the user hotlink selection

my $query = new CGI;

$house = $query->param('keywords');

# search for file and parse to get rid of garbage and setup for for page display

open(HOUSE, "/home/emr1/tkralidi/public_html/tkralidi/gis/project/homedata/$house.txt") or die "err0: $!\n";
while(<HOUSE>)
{
  my $tmp = $_;
  $tmp =~ s/\[New list price\]//gi;
  $tmp =~ s/\[Picture for .*\]//gi;
  $tmp =~ s/\[Image\]/\&nbsp\;\&nbsp\;/g;
  $tmp .= "<br>";
  push @stuff, $tmp
}
close(HOUSE);

$hdr = "Description of $house";

# print HTML page

print "Content-type:text/html\n\n";
print <<EndHTML;
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<html>
<head>
<title>
$hdr
</title>
<META HTTP-EQUIV="Content-Type" CONTENT="text/html; charset=windows-1252">
<META NAME="author" CONTENT="Tom Kralidis">
<META NAME="pos" CONTENT="Geo-Spatial Developer">
<META NAME="subject" CONTENT="GEOHome house description of house id $house">
<META NAME="keywords" CONTENT="GIS, web mapping, real estate">
```

```
<META NAME="date" CONTENT="March 2000">
<body>
<h1>
<img src="/~tkralidi/tkralidi/gis/project/images/GEOHomeMain.gif" alt="GEOHome logo">
<br>
$hdr
</h1>
<hr>
<img src="../tkralidi/gis/project/homedata/$house.jpg" alt="Image of $house" align="top">
<hr>
@stuff
<hr>
<a href="/~tkralidi/tkralidi/gis/project/">GEOHome Website</a>
</body>
</html>
EndHTML

exit(0);
```

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<DOCUMENT>
<!-- Docu BEGIN -->
<!-- FGDC METADATA CONTENT STANDARD v1.0 -->
<METADATA>
GEOHome v1.0 Sample Dataset

<!-- Section 1 BEGIN-->
<IDENTIFICATION>

<CITATION>
<ORIGINATOR>Tom Kralidis</ORIGINATOR>
<PUBLICATIONDATE>11 April 2000</PUBLICATIONDATE>
<TITLE>GEOHome v1.0 system sample data format standard</TITLE>
<SERIES>GEOHome</SERIES>
<ISSUE>One</ISSUE>
<PUBLICATIONPLACE>Ottawa, Ontario, Canada</PUBLICATIONPLACE>
<PUBLISHER>Tom Kralidis / Kevin Riley</PUBLISHER>
</CITATION>

<DESCRIPTION>
<ABSTRACT>Sample data formatting standard to FGDC 1.0</ABSTRACT>
<PURPOSE>A sample of house data aligning to a metadata standard for use by Real Estate / Housing
organizations, defining a common framework for easier data sharing.</PURPOSE>
</DESCRIPTION>

<TIMEPERIOD>
<INFO>
<CALDATE>Range: 10 January - 11 April 2000</CALDATE>
<CURRENTNESS>Based on properties for sale within RMOC</CURRENTNESS>
</INFO>
</TIMEPERIOD>

<STATUS>
<PROGRESS>Completed for testing</PROGRESS>
<MAINTENANCE>None</MAINTENANCE>
</STATUS>

<SPATIALDOMAIN>-75.00 W 45.00 N, RMOC</SPATIALDOMAIN>
<KEYWORDS>RMOC house houses proprety for sale real estate home homes</KEYWORDS>
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<!-- Section 1 END -->

</IDENTIFICATION>

<REFERENCE>

<!-- Section 2 BEGIN -->

<DATE>Last compiled / updated 20 February 2000</DATE>
<CONTACT>
<person>Kevin Riley
kriley1@hotmail.com</person>
<person>Tom Kralidis
Geo-Spatial Developer
Data Acquisition Division
Canada Centre for Remote Sensing
<a href="http://www.ccrs.nrcan.gc.ca">ccrs</a>
```

```
tom.kralidis@ccrs.nrcan.gc.ca</person>
</CONTACT>
<STANDARDNAME>GEOHome Content Standards for Digital Geospatial Metadata</STANDARDNAME>
<VER>v1.0 release with GEOHome system</VER>

<!-- Section 2 END -->

</REFERENCE>

</METADATA>

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      result-ns="">

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</HEAD>
<BODY>
<xsl:process-children>
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</xsl:template>

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<LI>
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</LI>
</xsl:template>

<xsl:template pattern = "person">
<LI>
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</xsl:template>
</xsl:stylesheet>
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