GIS 6103
Programming for GIS – Class 11
Exercise 1

Write a module that contains two functions, one for each task below, as well as a calling script that uses these functions.

Function 1

The intent of this function is to generate some line feature class buffers and then combine (union) these with areas either inside or outside the floodplain to produce a single feature (potentially multipart) polygon feature class that can then be used for clipping. The line feature classes that are input are all buffered with the same distance. The function requires 7 inputs:

a) the current workspace (feature dataset under the geodatabase)

b) a list of line feature classes to be buffered

c) the buffer distance

d) the buffer distance units (feet or meters)

e) the name of the flood plain layer

f) the field from the floodplain layer on which the selection will be based (SFHA)

g) the value that the field needs to equal for the selection (in/out)

Function 2

The intent of this function is to simplify the land use layer by performing a multipart dissolve based upon the type of land use and then use the layer from task 1 to clip this new land use layer. That will be your final output. The function requires 3 inputs:

a) the land use feature class

b) the field upon which the dissolve is based (DESCRIPT)

c) the output feature class from Function 1

Eventually all but parameter c) from function 2 will come from a script tool dialog box but you will first get the calling script and functions working as stand-alone before making a script tool.

To begin with, you will develop all your code in one script, where the functions are defined within the script. Once you know this is working, you can place (cut/paste) the functions in their own module and

then edit the remainder to be the calling script. I have provided a starter script to guide you thru the initial script. Note that function 2 is pretty much written for you since it only involves tools.

Once the stand-alone calling and module scripts are written and working, you will now “convert” your calling script to a script tool.

For the script tool, as indicated above, there should be 9 input parameters. The user of the script should be able to choose:

a) Which line feature classes are used for the buffer.

b) What (uniform) buffer distance is used.

c) The units (meters or feet) used for the buffer.

d) Whether areas inside or outside the floodplain are used.

Of the remaining parameters: the current workspace can be set by the environment; the land use feature class and the field used to dissolve it, and the floodplain feature class and the field used to select whether inside or outside the floodplain should be set up with default inputs in the script tool dialog box.

Your script tool must also be able to display the resultant feature class from the run.

Note that a map document (with correct environment settings) has been provided, as well as an empty toolbox for your script tool.