**Requirements for Task 1 Project 1**

1. **Determine and describe required inputs from user**

Data considered inputs from the user are spreadsheets, databases, python template scripts, and word documents should be saved inside the Docs folder if they need to be used. To create a standard directory with files the required inputs from the user are the Parent folder (TestTemplate folder), and the python template file. The Parent folder is required input from the user because we need to specify a place to store all other folders and data. The python template file is required input by the user because that is the way we are going to be able to create additional files and folders inside the Parent folder if we want to use code to create files in our other folder directories

1. **Determine and describe information required internally that the user does not have to provide**

File Paths should be input into the python template. To create a standard directory with files. File paths do not have to be memorized, but are required from the user to back track and execute commands in python template.

The computer internally needs the right computer commands to solve a problem such as a list, loop, functions, and defining objects. If we don’t have the right commands to execute then we will not be able to solve our problem. The created subfolders are made from the python code we have specified in the Parent folder. We can define what they can be defined as by us if possible, but does not have to be provided.

1. **Determine and describe final output**

The final output folders are called “TestTemplate” folder, “Doc” folder, “Script” folder, and “Tooldata” folder. The final output of the data should be the file geodatabases called “Results.gdb”, “Scratch.gdb”, and “SourceData.gdb.” Another final output can be from the Python template py files with computer commands and procedures to save for documentation.

1. **Identify geoprocessing tools that can be used**

All geoprocessing tools for ArcGIS are provided as functions. We use ArcPY to access Python geoprocessing capability in ArcGIS. Once we import ArcPY to a Python template script we can run all geoprocessing tools found in the standard toolboxes. The syntax we use to run a geoprocessing tool is procedure is arcpy.<toolname\_toolboxalias>(<parameters>). We use ArcPY because the setup is organized as modules, functions and classes. This means we can use tools such as Buffer, Clip, Union, Merge, and all other Analysis tools in the standard toolboxes. Depending on what we are investigating we can use Watershed Analysis tools, Viewshed Analysis tools, Selections, Map Algebra, many more. In Task 1 we could use the Python template script using geoprocessing tools for selecting and creating new folders and file geodatabases as seen in the flow chart.

1. **Identify tasks that can or must be done using Python tools**

Tasks we must do if we are using Python tools for ArcGIS is importing ArcPY to a python template script. Tasks that can use Python tools are assigning name to each object such as “TestTemplate” folder, “Doc” folder, “Script” folder, “Tooldata” folder, and each of the file geodatabases (Results.gbd, Scratch.gdb, and Source.gdb).

1. **Write out step by step recipe for accomplishing task (this is called writing pseudocode). Include your plans for what will happen if the input is not good.**

(See next page)

**START:**

#Bring in Project1\_folder

Import Project1\_folder

# Create TestTemplate folder inside Project1\_folder

TestTemplate folder = r”../D:/Project1\_folder

#Create Doc folder inside TestTemplate folder

Doc\_folder = r”../D:/Project1\_folder/TestTemplate/Doc

#Read values in Spreadsheet with calculations

Print all values

IF NOT: Repeat Process again

ELSE: Print out values

#Create Script folder inside TestTemplate folder

Script\_folder = r”../D:/Project1\_folder/TestTemplate/Scripts

#Save Python file in Spreadsheet with calculations

Save file

IF NOT: Repeat Process again

ELSE: Print out file path

#Create Tooldata folder inside TestTemplate folder

Tooldata\_folder = r”..D:/Project1\_folder/TestTemplate

#Make a loop creating a list of File Geodatabases

Home\_directory = r”../D:/Project1\_folder/TestTemplate/

Original\_data = Source.gbd

Scratch\_data = Scratch.gdb

Source\_data = Source.gdb

#Print files to Tool\_data folder

Print files to Tooldata\_folder

IF NOT: Repeat Process again

ELSE: Print files to folders

**END:**