<u>**Instructions:**</u>

Submission date: Nov 15th 11.00 pm.

Save the programs into a folder **firstname_lastnameHW4** and zip the folder.

Email the assignment to ashakiran.byrappa@wmich.edu with subject **CS2100: HW4**

1) Write a class Rectangle that has attributes __length and __width, each of which defaults to 1. It has methods that calculates and returns the perimeter and the area of the rectangle. It has set and get methods for both __length and __width. The set method should verify that __length and __width are numbers larger than 0 and less than 20. The program should catch the exception if user enters anything other than a number as input, or a number out of range and ask for the correct input. Write a program to test the class.

2) You are the owner of a hardware store and have to keep an inventory that can tell you what tools you have, how many of each tools you have and the cost of each tool. Write a program that stores the data in the **shelve** dictionary. Use the information provided in the table below to start your dictionary (The tool name should be the key). Write a program to,
   a) Accept data about a tool from the user and add it to the dictionary.
   b) Calculates the cost of the inventory
   c) Accepts a name of a tool from user and output the quantity and the cost of the selected tool.
   d) Loop till the user wants to exit.

Tool name	Quantity	Cost
Hammer	76	11.99
Saw	88	12.00
Screwdriver	106	6.99
Wrench	34	7.50

3) Implement question 2 using file operations. Create a file inventory.txt and add the data in the table above. Each line of the file represents one record. Use a delimiter of your choice to separate each field. The program should provide the following options.
   a) Accept data about one tool from the user and add it to the file.
   b) Display the contents of the file in tabular column as above.