

Introduction to Python Assignment 2

Write Python Program for the following (include necessary exception handling wherever required):

1. Prompt the user for a score between 0.0 and 1.0. If the score is out of range, print an error message. If the score is between 0.0 and 1.0, print a grade using the following table:

Score	Grade
≥ 0.9	A
≥ 0.8	B
≥ 0.7	C
≥ 0.6	D
< 0.6	E

2. If cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.
3. **Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not.**
4. **A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.**
5. If the ages of Ram, Shyam and Ajay are input through the keyboard, write a program to determine the youngest of the three.
6. Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees.
7. Find the absolute value of a number entered through the keyboard.

8. Given three points (x_1, y_1) , (x_2, y_2) and (x_3, y_3) , write a program to check if all the three points fall on one straight line.
9. Given a point (x, y) , write a program to find out if it lies on the x-axis, y-axis or at the origin, viz. $(0, 0)$.
10. A certain grade of steel is graded according to the following conditions:
 - a. (i) Hardness must be greater than 50
 - b. (ii) Carbon content must be less than 0.7
 - c. (iii) Tensile strength must be greater than 5600

The grades are as follows:

Grade is 10 if all three conditions are met
Grade is 9 if conditions (i) and (ii) are met
Grade is 8 if conditions (ii) and (iii) are met
Grade is 7 if conditions (i) and (iii) are met
Grade is 6 if only one condition is met
Grade is 5 if none of the conditions are met

Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.

11. A library charges a fine for every book returned late. For first 5 days the fine is 50 paise, for 6-10 days fine is one rupee and above 10 days fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message.
12. In a company, worker efficiency is determined on the basis of the time required for a worker to complete a particular job. If the time taken by the worker is between 2 – 3 hours, then the worker is said to be highly efficient. If the time required by the worker is between 3 – 4 hours, then the worker is ordered to improve speed. If the time taken is between 4 – 5 hours, the worker is given training to improve his speed, and if the time taken by the worker is more than 5 hours, then the worker has to leave the company. If the time taken by the worker is input through the keyboard, find the efficiency of the worker.
13. A university has the following rules for a student to qualify for a degree with A as the main subject and B as the subsidiary subject:

- a. He should get 55 percent or more in A and 45 percent or more in B.
- b. If he gets than 55 percent in A he should get 55 percent or more in B. However, he should get at least 45 percent in A.
- c. If he gets less than 45 percent in B and 65 percent or more in A he is allowed to reappear in an examination in B to qualify.
- d. In all other cases he is declared to have failed.

Write a program to receive marks in A and B and Output whether the student has passed, failed or is allowed to reappear in B.