SSN COLLEGE OF ENGINEERING

(Autonomous - Affiliated to Anna University)

DEPARTMENT OF CSE

UGE2197 PROGRAMMING IN PYTHON LABORATORY

Ex 3: Python Programming – Conditionals

Part – A (Mandatory)

1. Find the roots of a quadratic equation.
2. Read three sides of a triangle and check whether the triangle is equilateral, isosceles or scalene.
3. Find the smallest of three numbers.
4. The marks obtained by a student in 3 different subjects are input by the user. Your program should calculate the average of subjects and display the grade. The student gets a grade as per the following rules:

Average	Grade
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

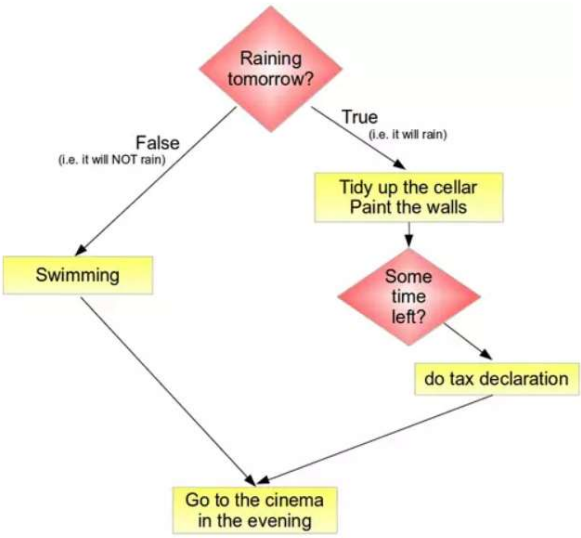
5. A company decides to give bonus to all its employees for Diwali. A 5% bonus on salary is given to the male workers and 15% bonus on salary to the female workers. If the salary of the employee is less than Rs. 10000/- then the employee gets an extra 2% bonus on salary. Calculate the bonus that the employee will get and display the total salary.
6. Generate an electricity bill with the following constraints:
   Bill needs to be generated for the consumers as per the number of units consumed. The consumed units can be obtained by taking the difference between the current month's meter reading and previous month's meter reading. If consumed units are greater than 500, then the cost per unit is Rs.3/-. If units are greater than 1000, then the cost per unit is Rs.5/- and if units are less than 500, cost per unit is Rs.1.50/-
7. Prompt a user to read the marks of five different subjects. Calculate the total marks and percentage of the marks and display the message according to the range of percentage (per) given below.
   per > = 90 -- Distinction
   per > = 80 && per < 90 -- First Class
   per > = 70 && per < 80 -- Second Class
   per > = 60 && per < 70 -- Third Class
   per <60 – Fail
8. Assume that x refers to a number. Write a code segment that prints the number's absolute value without using Python's abs function.
9. Write a program which takes a character input and checks whether it is vowel or consonant.
10. Write a program to check given year is leap year or not. (In the Gregorian calendar three criteria must be taken into account to identify leap years:
    - The year can be evenly divided by 4
    - If the year can be evenly divided by 100, it is NOT a leap year, unless;
    - The year is also evenly divisible by 400. Then it is a leap year.)

Part – B (Optional)

11. For children and dog lovers it is an interesting and frequently asked question how old their dog would be if it was not a dog, but a human being. To calculate this task, there are various scientific and pseudo-scientific approaches. An easy approach can be:

    A one-year-old dog is roughly equivalent to a 14-year-old human being
    A dog that is two years old corresponds in development to a 22 year old person.
    Each additional dog year is equivalent to five human years.

12. Write python code for the following scenario



13. Get a number as input from user. Find if the number is even or odd, and then if it is even, whether it is divisible by 4 or not, and if it is odd, whether it is divisible by 3 or not.
14. Write a series of Python statements that will read three strings from the user, and then print them in dictionary order. (Note: you can compare two strings using the relational operators).
15. Write a program to find the value of y using

$$y(x,n) = \begin{cases} 1 + x \ when\ n = 1 \\ 1 + \frac{x}{n} \ when\ n = 2 \\ 1 + x^n \ when\ n = 3 \\ 1 + nx \ when\ n > 3 \ or\ n < 1 \end{cases}$$

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