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ASSIGNMENT-2

CLASS : 10 **Submission : 13/07/2022**

1. Write a program to accept a number and check whether it is a palindrome number or not by using a function reverse(int n). The function returns the reversed number to the main function that checks the palindrome number.
2. Write a program to accept consumer number, consumer name, units consumed from the user and calculate the monthly electricity bill of a consumer according to the number of units consumed. The tariff is given below:

Units Consumed	Charges
Up to 100 units	Rs 1.5 per unit
Next 100 units	Rs 2.5 per unit
More than 200 units	Rs 3 per unit

   Use a function name cal(int uni) to calculate the amount (units consumed * charges) and print the information in the main function as given in the format below:
   Consumer Number :
   Consumer Name :
   Units Consumed :
   Amount :

3. Write a program to input a number and use a method Armstrong(int n) which returns 1 if a number is Armstrong and 0 if it is not a Armstrong number.
   Sample Input : 153
   Sample Output : $1^3 + 5^3 + 3^3 = 153$
   153 is an Armstrong number.
4. Write a program to print the factorial of a number by defining a method named Factorial(int n).
   Factorial of any number n is represented by n! and is equal to 1*2*3*....*(n-1)*n.
   E.g.-
   4! = 1*2*3*4 = 24
   3! = 3*2*1 = 6
   2! = 2*1 = 2

5. A prime number is a number that is evenly divisible only by itself and 1. For example, the number 5 is prime because it can be evenly divided only by 1 and 5. The number 6, however, is not prime because it can be divided evenly by 1, 2, 4, and 6.
   Write a method named isPrime(int num), which takes an integer as an argument and returns true if the argument is a prime number, or false otherwise. Also write main method that displays prime numbers between 1 to 500.

6. Create a method which accepts temperature in Celsius and return its Fahrenheit equivalent. Create another method which accepts temperature in Fahrenheit and return its Celsius equivalent. Also create a main method to invoke the above methods.
   Temperature in Celsius C=(F-32)*5/9;
   Temperature in Fahrenheit F=9*C/5+32;

7. Write a class with the name volume using function overloading that computes the volume of a cube, a sphere and a cuboid.
   Formula:
   volume of a cube (vc) = s*s*s
   volume of a sphere (vs) = 4/3 * pi * r * r * r (where pi = 3.14 or 22/7)
   Volume of a cuboid (vcd) = l * b * h

8. Design a class to overload a function num_calc( ) as follows:

   a. void num_calc(int num, char ch) with one integer argument and one character argument, computes the square of integer argument if choice ch is ‘s’ otherwise find its cube.
   b. void num_calc(int a, int b, char ch) with two integer arguments if ch is ‘p’ else adds the integers.
   c. void num_calc(String s1,String s2) with two String arguments, which prints whether the strings are equal or not.

9. Design a class to overload a function **compute()** as follows:
   (i) void compute(int, char): to compute the square of the integer argument if the given character argument is ‘s’ otherwise find its cube.
   (ii) void compute(double char): to compute volume of a cube if the given character argument is ‘v’ otherwise find its diagonal.
   void compute(int, int, char): to compute area of a rectangle if the given character argument is ‘a’ otherwise finds its perimeter.
   Formulas :
   Volume of cube=side3
   Area of rectangle=length*breadth

Diagonal of cube=a√3
Perimeter of rectangle=2*(length + breadth)

10. Define a class '**Salary'** described as below:

Data Members:

Name, Address, Phone, Subject Specialisation, Monthly Salary, Income Tax.

Member Methods:

i. To accept the details of a teacher including the monthly salary.
ii. To display the details of the teacher.
iii. To compute the annual Income Tax as 5% of the annual salary above ` 1,75,000/-.

Write a main method to create object of the class and call the above member method.

11. Define a class '**Student'** described as below:

Data members/instance variables:

name,age,m1,m2,m3 (marks in 3 subjects), max_Marks, average

Member Methods:

i. To accept the details of a student
ii. To compute the average and the maximum out of three marks
iii. To display the name, age, marks in three subjects, maximum and average

Write a main method to create an object of a class and call the above member methods.

12. Define a class called '**Mobike'** with the following description:

Instance variables/ Data members:

bno : to store the bike's number
phno : to store the phone number of the customer
name : to store the name of the customer
days : to store the number of days the bike is taken on rent
charge : to calculate and store the rental charge

Member methods:

void input () : to input and store the detail of the customer
void compute () : to compute the rental charge. The rent for a Mobike is charged on the following basis :

First five days : `Rs 500 per day
Next five days : Rs 400 per day
Rest of the days : Rs 200 per day

void display () : to display the details in the following format:

Bike No.	Phone No.	Name	No. of days	Charge
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