

ST. STEPHEN'S SCHOOL DUM DUM
Selection Assignments - 2020
CLASS – X
Computer Applications

1. Write a menu driven program to find the sum of the following series and display the pattern as per user's choice 1 or 2 and using the concept of function overloading:

Method Prototype: **void display ()** : to calculate and display the sum of the following series up to 8th terms. (Choice 1)

S = 5 + 55 + 555 +up to 8 terms

Method Prototype: **void display (int LN)** : to display the following Fibonacci numbers pattern as per the argument **LN**. Here LN indicates number of lines in the pattern. (Choice 2)

[The Fibonacci terms in each line starting from 0 and there are one space between each term.] If $LN = 7$ then the following pattern will display:

0

0 1

0 1 1

0 1 1 2

0 1 1 2 3

0 1 1 2 3 5

0 1 1 2 3 5 8

Write a main () method to call the above methods using an object as per user's choice 1 or 2.

2. Write a program in Java to perform the following task using function:

A method **void Palin ()** : to count & display all the Palindrome words from a given sentence. A Palindrome is a string that reads the same from left to right and vice versa.

Example:

Sample Input: Enter the Sentence: MOM and Dad will be coming at noon

Sample Output: Palindrome words are: MOM Dad noon

Total = 3

A method **void count ()** : to count & display the words of a given sentence that starts & ends with a vowel.

Write a main () method to call the above methods using an object.

Example:

Sample Input: Enter the Sentence: I have an apple

Sample Output: The words are: I apple

Total = 2

3. Define a class named BookFair with the following description:

Instance variables/Data members:

String bname – stores the name of the book.

double price – stores the price of the book.

Member Methods:

BookFair () : Default constructor to initialize data members.
void Input () : To input and store the name and the price of the book.
void calculate () : To calculate the price after discount. Discount is calculated based on the following criteria:

Price

Less than or equal to ₹ 1000

More than ₹ 1000 and less than or equal to ₹ 3000

More than ₹ 3000

Discount

2% of price

10% of price

15% of price

void display () : To display the name and price of the book after discount.

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

4. Write a program to accept the names and total marks of Computer Applications out of 100 in an examination of 'n' number of students of class X. Count and display how many Students score 90 and above marks and display their names along with their marks. Finally also display the Highest Marks along with the student Name.
5. Write a program in Java to accept 10 different 3 digit numbers in array and calculate the sum of all numbers that is multiple of both 2 and 3 present in that array using function.

Instance variables/Data members:

int a [] : to store the 10 numbers

Rest of the variables can be assumed as required according to the logic of the program.

Instance Methods:

void accept () : to accept 10 different 3 digit numbers in an array using an input statement.

boolean check (int x) : to check the argument is multiple of both 2 and 3 or not. If yes then it returns true otherwise it returns false.

void display () : to display all the numbers and their position in that array that is multiple of both 2 and 3. Finally display the sum of all numbers that is multiple of both 2 and 3 present in that array with proper message.

Write a main () to call the method using an object to perform the task.

6. Write a program in Java to create an array to store 10 integers and print the largest integer and the smallest integer from that array after arranging the array elements in ascending order using Bubble sorting technique. Display the results with proper message.

7. Design a class to overload a function check(...) as follows:

- (i) void check (String str , char ch) : to find and print the frequency of a character in a string.

Example:

Sample Input: str = "success" ch = 's'

Sample Output: number of s present in the word success is = 3

- (ii) void check (String s1) : to display only vowels from string s1, after converting it to lower case.

Example:

Sample Input: s1 = "COMPUTER"

Sample Output: The vowels are : o u e

Write a main () method to call the overloaded methods using an object.

8. Write a menu driven program to perform the following task according to the user's choice.

- a) Check a number is **Duck Number** or not.

A **Duck Number** is a number having at least one zero as a part of it. The product of the digits of a Duck number is always zero. Example: **10, 1050, 200, 305**.

- b) Check a number is **Perfect Number** or not.

If the sum of the factors of a number excluding the number itself is equal to the number then the number is called a Perfect Number.

Example: **6, 28**. The factors of 6 are 1, 2, 3 and 6. So **1+2+3 = 6** i.e. equal to the 6 so it is a Perfect Number.

The factors of 28 are 1, 2, 4, 7, 14, and 28. So **1+2+4+7+14 = 28** i.e. equal to the 28 so it is a Perfect Number.

Assume that when the user enters 1 then the Duck Number is checked and when the user enters 2 then Perfect Number is checked otherwise display "Wrong choice".

➤ **INSTRUCTION:**

1. Program Question Hand Written
2. Printout of the Code with comments in Blue J Environment
3. Printout of the output with all combination of inputs in Blue J Environment.
4. Variable List: Hand Written and heading are as follows:

Variable name	Type	Purpose
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5. Function description: Hand Written and heading are as follows:

Function name	return type	Argument type & name	Purpose
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6. Finally write down the Conclusion about your assignment also specify the software name with version & the total time to complete the task.