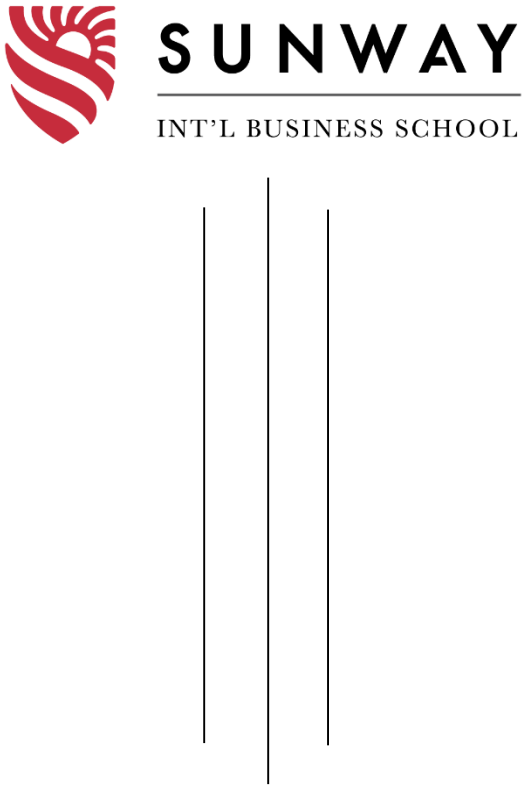

Programme Name: BACHELOR OF COMPUTER SCIENCE
Course Code: CSC1513
Course Name: PROGRAMMING FUNDAMENTAL
Assignment / Lab Sheet / Project / Case Study No. 01

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a) **Explain the differences between process oriented programming and object oriented programming.**

Ans; Object Oriented Programming (OOP)

OOP is a high-level programming language where a program is divided into small chunks called objects using the object-oriented model, hence the name. This paradigm is based on objects and classes.

- **Object** – An object is basically a self-contained entity that accumulates both data and procedures to manipulate the data. Objects are merely instances of classes.
- **Class** – A class, in simple terms, is a blueprint of an object which defines all the common properties of one or more objects that are associated with it. A class can be used to define multiple objects within a program.

OOP stands for Object-oriented programming and is a programming approach that focuses on data rather than the algorithm

In OOP, the program is divided into small chunks called objects which are instances of classes

Three accessing modes are used in OOP to access attributes or functions – 'Private', 'Public', and 'Protected'

The main focus is on the data associated with the program in case of OOP

In OOP, various functions can work simultaneously
In OOP, the data and functions of an object act like a single entity so accessibility is limited to the member functions of the same class.

Procedure Oriented Programming (POP)

POP follows a step-by-step approach to break down a task into a collection of variables and routines (or subroutines) through a sequence of instructions. Each step is carried out in order in a systematic manner so that a computer can understand what to do. The program is divided into small parts called functions and then it follows a series of computational steps to be carried out in order.
in POP, the main program is divided into small parts based on the functions.
POP, short for Procedure-oriented programming, focuses on procedural abstractions.
In POP, on the other hand, no such accessing mode is required to access attributes or functions of a particular program.
POP relies on functions or algorithms of the program.
POP follows a systematic step-by-step approach to execute methods and functions.
In POP, on the other hand, data can move freely because each function contains different data.

b) Explain the three object oriented principles.

Ans;

The three object oriented principles are as follows,

1) Encapsulation: Encapsulation is the idea that the attributes of an entity are enclosed in that entity. This gives context to attributes. This also allows the programmer to restrict access to those attributes so that those attributes are modified and/or used only in ways that the programmer intends to use them.

2) Inheritance: Inheritance is the idea that an entity can inherit attributes from another entity. It allows the programmer to create similar entities without needing to redefine similar attributes over and over.

3) Polymorphism: Polymorphism is the method in an object-oriented programming language that performs different things as per the object's class, which calls it. With Polymorphism, a message is sent to multiple class objects, and every object responds appropriately according to the properties of the class.

2. Write a java program to check whether the given number is palindrome or not.

Ans;

```
import  java. util.*;
class  PalindromeNumber { public static void main(String args[])
 {
String original, reverse = ""; // Objects of String class
 Scanner in = new Scanner(System.in);
```

```
System.out.println("Enter the number to check if it is a palindrome");
 original = in.nextLine();
 int length = original.length();
for ( int i = length - 1; i >= 0; i-- )
reverse = reverse + original.charAt(i);
if (original.equals(reverse))
System.out.println(" is palindrome."); else
System.out.println("is not palindrome.");
 }
 }
```

Screenshot of the output,

3. Write a java program for a simple calculator using switch statements.

Ans;

```
 import java.util.Scanner;
public class Calculator
{
public static void main(String[] args)
{

 Scanner sc=new Scanner(System.in);
 System.out.println("Enter your choice : ");
 System.out.println("1. ADDITION");
 System.out.println("2. SUBTRACTION ");
 System.out.println("3. MULTIPLICATION ");
 System.out.println("4. DIVISION");
 int n=sc.nextInt();
```

```
System.out.println("ENTER FIRST NUMBER ");
int a=sc.nextInt();

System.out.println("ENTER SECOND NUMBER ");
int b=sc.nextInt();

double result=0;//'result' will store the result of operation

switch(n)
{
 case 1:
  result=a+b;
  break;
 case 2:
  result=a-b;
  break;
 case 3:
  result=a*b;
  break;
 case 4:
  if(b==0)//when denominator becomes zero
  {
   System.out.println("DIVISION NOT POSSIBLE");
   break;
  }
  else
   result=a/b;
```

```
  default:
    System.out.println("YOU HAVE ENTERED A WRONG CHOICE");

 }

 System.out.println("RESULT = "+result);
}
}
```