DAE CIT Year 2
Object Oriented Programming
Subject Code 212

Practical # 1

Installation of JDK.

Step 1: Download JDK

1. Goto Java SE download site @ http://www.oracle.com/technetwork/java/javase/downloads/index.html.
2. Under "Java Platform, Standard Edition" ⇒ "Java SE 11.0.{x}", where {x} denotes a fast running security-update number ⇒ Click the "Oracle JDK" "Download" button.
3. Under "Java SE Development Kit 11.0.{x}" ⇒ Check "Accept License Agreement".
4. Choose the JDK for your operating system, i.e., "Windows". Download the "**exe**" installer (e.g., "`jdk-11.0.{x}_windows-x64_bin.exe` " - about 150MB).

Step 2: Install JDK

Run the downloaded installer (e.g., "`jdk-11.0.{x}_windows-x64_bin.exe`"), which installs both the JDK and JRE.

By default, JDK is installed in directory "`C:\Program Files\Java\jdk-11.0.{x}` ", where `{x}` denotes the update number. Accept the defaults and follow the screen instructions to install JDK.

Use your "File Explorer", navigate to `"C:\Program Files\Java"` to inspect the sub-directories. Take note of your **JDK installed directory**, in particular, the update number `{x}`, which you will need in the next step.

the JDK installed directory is "`C:\Program Files\Java\jdk-11.0.1`", where `{x}=1`.

Practical # 2

Installation of NetBeans and Eclips.

Step 0: Install JDK

To use NetBeans for Java programming, you need to first install Java Development Kit (JDK). See "JDK from practical 1 ".

Step 1: Download

Download "NetBeans IDE" installer from http://netbeans.org/downloads/index.html . There are many "bundles" available. For beginners, choose the 1st entry "Java SE" (e.g., "`netbeans-8.2-javase-windows.exe` " 95MB).

Step 2: Run the Installer

Run the downloaded installer.

Practical # 3

Setup the Environment Variable in classpath.

you have installed Java in *c:\Program Files\java\jdk* directory −

- Right-click on 'My Computer' and select 'Properties'.
- Click the 'Environment variables' button under the 'Advanced' tab.
- Now, alter the 'Path' variable so that it also contains the path to the Java executable. Example, if the path is currently set to 'C:\WINDOWS\SYSTEM32', then change your path to read 'C:\WINDOWS\SYSTEM32;c:\Program Files\java\jdk\bin'.

Practical # 4

Write a Java Code to Check Student is Pass or Fail.

```
import java.util.Scanner;
public class PassFail {

 public static void main(String[] args) {
  int num;
  Scanner reader = new Scanner(System.in);
  System.out.println("Enter score: ");
  num = reader.nextInt();

  if (num>=500)
  {
   System.out.println("Pass!");
  }
  else
   System.out.println("Fail!");
 }

}
```

Output:
Enter score: 300
Fail!

Practical # 5

Write a Java Code to Check pin code validation.

```
import java.util.Scanner;

public class EnterPIN
{
        public static void main( String[] args )
        {
                Scanner keyboard = new Scanner(System.in);
                int pin = 12345;

                System.out.println("WELCOME TO THE BANK OF PUNJAB.");
                System.out.print("ENTER YOUR PIN: ");
                int entry = keyboard.nextInt();

                while ( entry != pin )
                {
                        System.out.println("\nINCORRECT PIN. TRY AGAIN.");
                        System.out.print("ENTER YOUR PIN: ");
                        entry = keyboard.nextInt();
                }

                System.out.println("\nPIN ACCEPTED. YOU NOW HAVE ACCESS TO
YOUR ACCOUNT.");
        }
}
```

OUT PUT

WELCOME TO THE BANK OF PUNJAB
ENTER YOUR PIN: 90210

INCORRECT PIN. TRY AGAIN.
ENTER YOUR PIN: 11111

INCORRECT PIN. TRY AGAIN.
ENTER YOUR PIN: 12345

PIN ACCEPTED. YOU NOW HAVE ACCESS TO YOUR ACCOUNT

Practical # 6

Write a Java Code to printing a week day based on switchcase statement

```
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter a weekday number :");

        int weekday = scanner.nextInt();

        switch (weekday) {
            case 1:
                System.out.println("Monday");
                break;
            case 2:
                System.out.println("Tuesday");
                break;
            case 3:
                System.out.println("Wednesday");
                break;
            case 4:
                System.out.println("Thursday");
                break;
            case 5:
                System.out.println("Friday");
                break;
            case 6:
                System.out.println("Saturday");
                break;
            case 7:
                System.out.println("Sunday");
                break;
            default:
                System.out.println("Invalid");
                break;
        }
    }
}
```

OUTPUT

```
Enter a week day number:1
Monday
```

Practical # 7

Write a Java Code to find an input is Alphabet, Digit or a Special character.

```
import java.util.Scanner;

public class AlphabetDigitSpecial {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter any caracter : ");
        char ch = scanner.next().charAt(0);

        if((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {

            System.out.println(ch + " is A ALPHABET.");

        } else if(ch >= '0' && ch <= '9') {

            System.out.println(ch + " is A DIGIT.");

        } else {

            System.out.println(ch + " is A SPECIAL CHARACTER.");
        }

    }
}
```

Output

```
Enter any character : @
@ is A SPECIAL CHARACTER.
```

Practical # 8

Find Largest (Maximum) and Smallest (Minimum) number in an Array.

```
package com.company;

import java.util.Arrays;

public class MinMaxArray {
    public static void main(String[] args) {
        int [] numbs={12,13,45,6,90,1,2,31,46,7};

        Arrays.sort(numbs);
        System.out.println("MiniMum:"+numbs[0]);
        System.out.println("Maximum:"+numbs[numbs.length-1]);
        System.out.println("Sorted Array");
        for(int i=0;i<=numbs.length;i++) {
            System.out.println(numbs[i]);
        }


    }
}
```

Out Put:

MiniMum:1
Maximum:90
Sorted Array
1
2
6
7
12
13
31
45
46
90

Practical # 9

Printing series of natural numbers, even and odd numbers (GUI)

```
package com.company;
import java.util.Scanner;
public class OddEven {

        public static void main (String args[]){
            int r,i;
            Scanner scan=new Scanner(System.in);
//create a scanner object for input

            System.out.print("Enter the first number for the range: ");
            int num1=scan.nextInt();//reads num1 from user
            System.out.print("Enter the second number for the range: ");
            int num2=scan.nextInt();//reads num2 from user

            System.out.print("\nDisplay the even numbers between "+num1+" and
"+num2+" are :");

            for(i=num1; i<=num2; i++){
                r=i%2;
                if(r==0)
                    System.out.print(i+",");
            }

            System.out.print("\nDisplay the odd numbers between "+num1+" and
"+num2+" are :");

            for(i=num1; i<=num2; i++){
                r=i%2;
                if(r==1)
                    System.out.print(i+",");
            }
        }
    }
```

Out Put:

Enter the first number for the range: 1

Enter the second number for the range: 10

Display the even numbers between 1 and 10 are :2,4,6,8,10,

Display the odd numbers between 1 and 10 are :1,3,5,7,9,

Practical #10

Check for Prime Number.

```
public class PrimeExample{
 public static void main(String args[]){
  int i,m=0,flag=0;
  int n=3;//it is the number to be checked
  m=n/2;
  if(n==0||n==1){
   System.out.println(n+" is not prime number");
  }else{
   for(i=2;i<=m;i++){
    if(n%i==0){
     System.out.println(n+" is not prime number");
     flag=1;
     break;
    }
   }
   if(flag==0)  { System.out.println(n+" is prime number"); }
  }//end of else
}
}
```

OUT PUT:

3 is prime number

Practical # 11

Number Guessing Game in Java Code

```
package com.company;
import java.util.Random;
import java.util.Scanner;
class Game{
    public int number;
    public int inputNumber;
    public int noOfGuesses = 0;

    public int getNoOfGuesses() {
        return noOfGuesses;
    }
    public void setNoOfGuesses(int noOfGuesses) {
        this.noOfGuesses = noOfGuesses;
    }
    Game(){
        Random rand = new Random();
        this.number = rand.nextInt(100);
    }
    void takeUserInput(){
        System.out.println("Guess the number");
        Scanner sc = new Scanner(System.in);
        inputNumber = sc.nextInt();
    }
    boolean isCorrectNumber(){
        noOfGuesses++;
        if (inputNumber==number){
            System.out.format("Yes you guessed it right, it was %d\nYou guessed it in %d attempts", number,
noOfGuesses);
            return true;
        }
```

```
        else if(inputNumber<number){
            System.out.println("Too low...");
        }
        else if(inputNumber>number){
            System.out.println("Too high...");
        }
        return false;
    } }
public class cwh_50_ex3sol {
    public static void main(String[] args) {
        /*
            Create a class Game, which allows a user to play "Guess the Number"
            game once. Game should have the following methods:
            1. Constructor to generate the random number
            2. takeUserInput() to take a user input of number
            3. isCorrectNumber() to detect whether the number entered by the user is true
            4. getter and setter for noOfGuesses
            Use properties such as noOfGuesses(int), etc to get this task done!
         */
        Game g = new Game();
        boolean b= false;
        while(!b){
        g.takeUserInput();
        b = g.isCorrectNumber();
        }
    }
}
```

OUT PUT:

```
Guess the number
 10
Too low...
Guess the number
11
Too low...
Guess the number
30
```

Practical # 12

Basic Calculator

```
import java.util.Scanner;
public class Calculator {
   public static void main(String[] args) {
      double num1;
      double num2;
      double ans;
      char op;
      Scanner reader = new Scanner(System.in);
      System.out.print("Enter two numbers: ");
      num1 = reader.nextDouble();
      num2 = reader.nextDouble();
      System.out.print("\nEnter an operator (+, -, *, /): ");
      op = reader.next().charAt(0);
      switch(op) {
         case '+': ans = num1 + num2;
            break;
         case '-': ans = num1 - num2;
            break;
         case '*': ans = num1 * num2;
            break;
         case '/': ans = num1 / num2;
            break;
      default: System.out.printf("Error! Enter correct operator");
         return;
      }
      System.out.print("\nThe result is given as follows:\n");
      System.out.printf(num1 + " " + op + " " + num2 + " = " +
ans);
   }
}
```

Out Put:

```
Enter two numbers: 10.0 7.0
Enter an operator (+, -, *, /): -
The result is given as follows:
10.0 - 7.0 = 3.0
```

Practical # 13

Changing text case from lower to upper and upper to lower.

Lowercase to Uppercase:

```
import java.util.Scanner;

public class CodesCracker
{
  public static void main(String[] args)
  {
    String str;
    Scanner scan = new Scanner(System.in);

    System.out.print("Enter the String: ");
    str = scan.nextLine();

    str = str.toUpperCase();
    System.out.println("\nEquivalent String in Uppercase = " +str);
  }
}
```

Output:

```
Enter the String: red apple
Equivalent String in Uppercase = RED APPLE
```

Uppercase to lowercase:

```
import java.util.Scanner;
public class CodesCracker
{
  public static void main(String[] args)
  {
    Scanner scan = new Scanner(System.in);
        System.out.print("Enter the String: ");
    String strUpper = scan.nextLine();
        String strLower = strUpper.toLowerCase();
    System.out.println("\nEquivalent String in Lowercase: " +strLower);
  }
}
```

Output:

```
Enter the String: APPLE
Equivalent String in Lowercase:apple
```

Practical # 14

Reverse of a String.

```
import java.lang.*;
import java.io.*;
import java.util.*;

// Class of ReverseString
class ReverseString {
   public static void main(String[] args)
   {
      String input = "Apples are Red";

      StringBuilder input1 = new StringBuilder();

      // append a string into StringBuilder input1
      input1.append(input);

      // reverse StringBuilder input1
      input1.reverse();

      // print reversed String
      System.out.println(input1);
   }
}
```

Out PUT:

selppA era deR

Practical # 15

Creating a java class for student record to demonstrate classes, object and inheritance.

```
public class ClassInJava {


    String name;
    int rollno;
    String fathername;
    String contactno;
    String address;


    //Constructor


    ClassInJava(String name,int rollno,String fathername,String contactno,String addr
ess){


        this.name=name;
        this.rollno=rollno;
        this.fathername=fathername;
        this.contactno=contactno;
        this.address=address;


    }
}
public class ObjectOfClass {


    /**Simple illustration of how to create an object of given class and how it works
     */


    public static void main(String[] args) {


        //Object of class ClassInJava
        ClassInJava object=new ClassInJava("Mr. Abhishek",123,"Mr. Sulekh", "+1-87457
33445","#321, South Street, No-3, Ontario");


        System.out.println("Student Name is: " + object.name);
        System.out.println("Roll Number is: " + object.rollno);
        System.out.println("Fathers' Name is: "+ object.fathername);
```

```
        System.out.println("Contact Number is: "+ object.contactno);
        System.out.print("Student Address is: "+ object.address);


    }
}
```

Out Put:

Student Name is: Mr. Ali Suleman

Roll Number is: 123

Fathers' Name is: Mr. Suleman

Contact Number is: +92-3333333

Student Address is: H#1 block d gujranwala