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C31 - 2003145

Experiment 1: Program on accepting input through keyboard

A.

Aim : WAP to check if an integer (Accepted from user via BufferedReader Class) is a two digit number or not .

Theory :

BufferedReader : BufferedReader is a Java class that reads text from the input stream. It buffers the characters so that it can get the efficient reading of characters, arrays, etc. It inherits the reader class and makes the code efficient since we can read the data line-by-line with the readline() method. The constructor of this class accepts an InputStream object as a parameter.

In general, we can configure *BufferedReader* to take any kind of input stream as an underlying source. We can do it using *InputStreamReader* and wrapping it in the constructor:

```
BufferedReader br =
  new BufferedReader(new InputStreamReader(System.in));
```

In the above example, we are reading from *System.in* which typically corresponds to the input from the keyboard. Similarly, we could pass an input stream for reading from a file or any imaginable type of textual input.

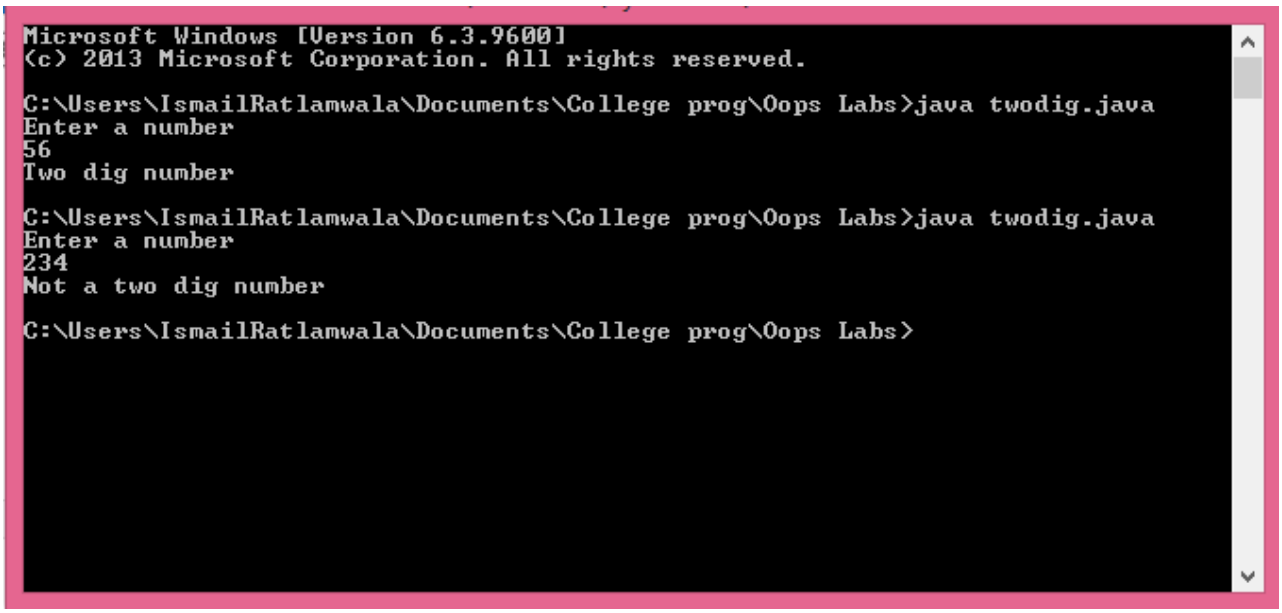
Syntax :

```
BufferedReader br =new BufferedReader(new InputStreamReader(System.in));
String name = br.readLine();
int roll_no = Integer.parseInt(br.readLine());
```

Program :

```
import java.io.*;

public class twodig {
    public static void main(String[] args) throws IOException
   {
       BufferedReader br = new BufferedReader(new InputStreamRe
ader(System.in));
       System.out.println("Enter a number");
       int number = Integer.parseInt(br.readLine());
       if(number<100 && number>9)
       System.out.println("Two dig number");
       else System.out.println("Not a two dig number");
   }
}
```

Output :



B.

Aim : WAP to print the Percentage range of a student as per following criteria for the grade accepted via Scanner Class

Percentage	Grade
0-60	F
61-70	D
71-80	C
81-90	B
91-100	A

Theory :

Scanner Class : Scanner is a class in java.util package used for obtaining the input of the primitive types like int, double, etc. and strings. It is the easiest way to read input in a Java program, though not very efficient.

- To create an object of Scanner class, we pass the object System.in, which represents the standard input stream from keyboard. We may pass an object of class File if we want to read input from a file.
- To read numerical values of a certain data type XYZ, the function to use is nextXYZ(). For example, to read a value of type short, we can use nextShort()
- To read strings, we use nextLine().
- To read a single character, we use next().charAt(0). next() function returns the next token/word in the input as a string and charAt(0) function returns the first character in that string.

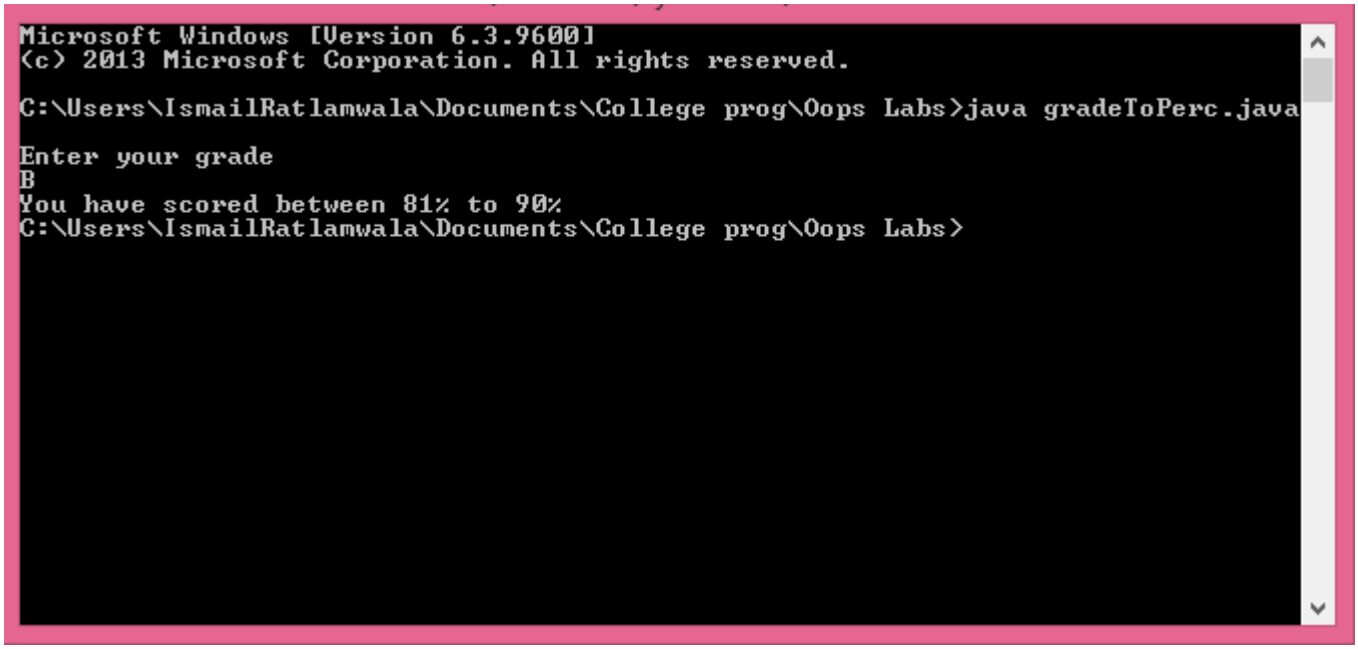
Syntax:

```
Scanner sc = new Scanner(System.in);
int number = sc.nextInt();
```

Program :

```
import java.util.Scanner;

public class gradeToPerc {
   public static void main(String[] args) {
      char grade;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter your grade ");
      grade=sc.next().charAt(0);
      System.out.print("You have scored between ");
      switch(grade)
      {
         case 'A':
         System.out.print("91% to 100%");
         break;

         case 'B':
         System.out.print("81% to 90%");
         break;

         case 'C':
         System.out.print("71% to 80%");
         break;

         case 'D':
         System.out.print("61% to 70%");
         break;

         case 'F':
         System.out.print("0% to 60%");
         break;
      }
      sc.close();
   }
}
```

Output:


Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\IsmailRatlamwala\Documents\College prog\Oops Labs>java gradeToPerc.java
Enter your grade
B
You have scored between 81% to 90%
C:\Users\IsmailRatlamwala\Documents\College prog\Oops Labs>

C .

Aim : Admission to a Professional Course is based on following conditions :

i. Marks in mathematics >=60
ii. Marks in Physics >=50
iii. Marks in Chemistry >=40
iv. Total marks in three subjects >=200

Accept the marks in three subjects(use BufferedReader class) and decide if the student is eligible to get admission or no.

Theory :

Advantages of BufferedReader class over Scanner class :

- *BufferedReader* is synchronized (thread-safe) while Scanner is not, hence cannot be used in Multi-threading .
- *Scanner* can accept carriage return character as a string/char hence it won't take input properly.
- *BufferedReader* allows for changing the size of the buffer while Scanner has a fixed buffer size .
- *BufferedReader* has a larger default buffer size of about 8Kb .
- *BufferedReader* is usually faster than *Scanner* because it only reads the data without parsing it .

Program :

```
import java.io.*;

public class eligibility {
   public static void main(String[] args) throws IOException{
      int p,c,m,total;
      BufferedReader br= new BufferedReader(new InputStreamRea
der(System.in));
      System.out.println("Enter your Physics, Chemistry, Maths ma
rks :");
      p=Integer.parseInt(br.readLine());
      c=Integer.parseInt(br.readLine());
      m=Integer.parseInt(br.readLine());
      total=p+c+m;
      if(p>=50 && c>=40 && m>=60 && total>=200) System.out.pri
ntln("You are eligible for admission !");
      else System.out.println("You are not eligible for admission !");
   }
}
```

Output :