# PROGRAMMING FUNDAMENTALS WEEK – 05 ASSIGNMENT

Darshana pubudu keerthirathna ICM 106 OR23106564

```
Question 01
class Example {
        public static void main(String args[]) {
                for(int i= 0; i<10;i++){
                System.out.println("Hello World");
                }
        }
}
Question 02
class Example {
        public static void main(String args[]) {
                for(int i= 0; i<100;i++){
                System.out.println(i+1);
                }
        }
}
```

```
class Example {
    public static void main(String args[]) {
        for(int i=0 ; i<100 ; i++){
            System.out.println(100-i);
        }
    }
}</pre>
```

```
class Example {
    public static void main(String args[]) {
        for(int i=0 ; i<100 ; i+=2){
            System.out.println(i);
        }
    }
}</pre>
```

```
public static void main(String args[]) {
    for(char i=65 ; i<=90 ; i++){
        System.out.println(i);
    }
}</pre>
```

```
class Example {
    public static void main(String args[]) {
        int num = 4;
        int fact = 1;
        for(int i=num; i>0; i--){
            fact *= i;
            System.out.print(i+" * ");
        }
        System.out.print(num<=0? "0! : 1" : "\b\b = "+fact);
    }
}</pre>
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter subject 1 Marks :");
                int marks = input.nextInt();
                int total = 0;
                total += marks;
                int min = marks;
                int max = marks;
                for(int i=1; i<10; i++){
                        System.out.print("Enter subject "+(i+1)+" Marks :");
                        marks = input.nextInt();
                        total+=marks;
                        if(marks>max){
                                max = marks;
                        }else if(marks<min){</pre>
                                min = marks;
                        }
                }
                double avarage = (double)total/10;
                System.out.println();
                System.out.println("Total : "+total);
                System.out.println("Max : "+max);
                System.out.println("Min : "+min);
                System.out.println("avarage: "+avarage);
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                int totHeight = 0;
                int totWeight = 0;
                for(int i=0; i<100; i++){
                        System.out.print("Enter Student "+(i+1)+" Height :");
                        int height = input.nextInt();
                        totHeight +=height;
                        System.out.print("Enter subject "+(i+1)+" Weight :");
                        int weight = input.nextInt();
                        totWeight +=weight;
                        System.out.println();
                }
                double avgHeight = (double)totHeight/100;
                double avgWeight = (double)totWeight/100;
                System.out.println();
                System.out.println("Avarage Height of Students: "+avgHeight);
                System.out.println("Avarage Weight of Students : "+avgWeight);
       }
}
```

```
For loop:-
```

```
class Example {
    public static void main(String args[]) {
        for(int i=0; i<10; i++){
            System.out.println("Hello World");
        }
}

While loop:-
class Example {
    public static void main(String args[]) {
        int count = 0;
}</pre>
```

while(count<10){

}

}

}

count++;

System.out.println("Hello World");

```
class Example {
    public static void main(String args[]) {
        int count = 0;
        while(count<100){
            count++;
            System.out.println(count);
        }
    }
}</pre>
```

```
import java.util.*;
class Example {
       public static void main(String args[]) {
               Scanner input = new Scanner(System.in);
               System.out.print("Please Enter Integer :");
               int num1 = input.nextInt();
               int num2 = num1;
               int count = 0;
               int total = 0;
               for(;num2>0;){
                       num2/=10;
                       count++;
                       int num3 = num1%10;
                        num1/=10;
                       total += num3;
               }
               System.out.println("Total = "+total);
       }
```

First loop prints 0 to 9

Second loop prints 0 2 4 6 8

Third loop prints 1 3 5 7 9

Fourth loop prints 0 to 9

Fifth loop prints 0 to 9

Sixth loop prints 1 to 10

Seventh loop prints 1 to 10

Eighth loop prints 1 to 9

Nineth loop prints 0 to 9

Tenth loop prints 1 to 10

Eleventh loop prints 0 to 10

Twelveth loop prints 0 to 9

```
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter number of Employees:");
                int emp = input.nextInt();
                int totSal = 0;
                int sal = 0;
                System.out.println();
                for (int i = 0; i < emp; i++) {
                        System.out.print("Enter Employee " + (i + 1) + " Salary:");
                        sal = input.nextInt();
                        totSal += sal;
                }
                // Balance paper and coins
                int fiveThousand = totSal / 5000;
                int fiveThousandbal = totSal % 5000;
                int twoThousand = fiveThousandbal / 2000;
                int twoThousandbal = fiveThousandbal % 2000;
                int thousand = twoThousandbal / 1000;
                int thousandbal = twoThousandbal % 1000;
                int fiveHundred = thousandbal / 500;
                int fiveHundredbal = thousandbal % 500;
                int twoHundred = fiveHundredbal / 200;
                int twoHundredbal = fiveHundredbal % 200;
                int hundred = twoHundredbal / 100;
                int hundredbal = twoHundredbal % 100;
                int fifty = hundredbal / 50;
                int fiftybal = hundredbal % 50;
                int twenty = fiftybal / 20;
                int twentybal = fiftybal % 20;
                int ten = twentybal / 10;
                int tenbal = twentybal % 10;
                int five = tenbal / 5;
```

```
int fivebal = tenbal % 5;
int two = fivebal / 2;
int twobal = fivebal % 2;
int one = twobal / 1;
System.out.println();
System.out.printf("%-15s: %5d %n", "5000 Notes", fiveThousand);
System.out.printf("%-15s: %5d %n", "2000 Notes", twoThousand);
System.out.printf("%-15s: %5d %n", "1000 Notes", thousand);
System.out.printf("%-15s: %5d %n", "500 Notes", fiveHundred);
System.out.printf("%-15s: %5d %n", "200 Notes", twoHundred);
System.out.printf("%-15s: %5d %n", "100 Notes", hundred);
System.out.printf("%-15s: %5d %n", "50 Notes", fifty);
System.out.printf("%-15s: %5d %n", "20 Notes", twenty);
System.out.printf("%-15s: %5d %n", "10 Coins", ten);
System.out.printf("%-15s: %5d %n", "5 Coins", five);
System.out.printf("%-15s: %5d %n", "2 Coins", two);
System.out.printf("%-15s: %5d %n", "1 Coins", one);
```

}

}

# Question 18 Prints C

# Question 19

Only B

# **Question 20**

A,C&E

#### **Question 21**

A: Never Ending loop starting from 0. Because condition always true.

B : Prints i = 0 to I = 9

C: i:0

i:2

i:4

i:6

i:8

D: Prints Ch: A to Ch: Z

E: 0 10

19

28

3 7

4 6

5 5

F: Prints ASCII 1 to 127 characters

G: Prints 101 10 Times

```
A , C, D, E, F, G, I, J, K
```

```
import java.util.*;
class Example {
       public static void main(String args[]) {
               Scanner input = new Scanner(System.in);
               int countLess = 0;
               int countMore = 0;
               int num = 0;
               while (num!=-1){
                       System.out.print("Enter Integer Number (Press -1 to exit) : ");
                        num = input.nextInt();
                        if(num<1000){
                               countLess++;
                        }else if(num>1000){
                               countMore++;
                        }
               }
               System.out.println();
               System.out.println("There are "+countLess+" numbers are less than 1000");
               System.out.println("There are "+countMore+" numbers are less more 1000");
       }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Random input = new Random();
                int headCount = 0;
                int tailCount = 0;
                for(int i= 0;i<10;i++){
                        int num = input.nextInt(2);
                        if(num == 0){
                                System.out.println("HEAD");
                                headCount++;
                        }else if(num == 1){
                                System.out.println("TAIL");
                                tailCount++;
                        }
                }
                System.out.println();
                System.out.println("Statics: "+headCount+" Heads and "+tailCount+" Tails");
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Random number = new Random();
                Scanner input = new Scanner(System.in);
                System.out.print("Please Enter your desired number :");
                int dis = input.nextInt();
                int num = 0;
                int count = 0;
                while(dis!=num){
                        num = number.nextInt(6)+1;
                        System.out.println(num);
                        count++;
                }
                System.out.println();
                System.out.println("You have Rolled "+count+" times for get desired number");
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Please Enter Integer :");
                int num1 = input.nextInt();
                int num2 = num1;
                int count = 0;
                int total = 0;
                while(num2>0){
                       num2/=10;
                       count++;
                       int num3 =num1%10;
                        num1/=10;
                        total += num3;
                }
                System.out.println("Total = "+total);
        }
}
```

```
import java.util.*;
class Example {
       public static void main(String args[]) {
               Scanner input = new Scanner(System.in);
               System.out.print("Please Enter Integer :");
               int num1 = input.nextInt();
               int num2 = num1;
               int count = 0;
               int total = 0;
               while(num2>0){
                       count++;
                       num2/=10;
                       int num3 =num1%10;
                       num1/=10;
                       total += num3;
                       System.out.print(num3);
               }
       }
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter a Number :");
                int num = input.nextInt();
                int IDigit = num%10;
                int fDigit = 0;
                while(num>0){
                        fDigit = num%10;
                        num/=10;
                }
                if(IDigit==fDigit){
                        System.out.println("You Entered palindrome Number");
                }else{
                        System.out.println("You did not Entered palindrome Number");
                }
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter Student 1 Marks :");
                int marks = input.nextInt();
                int total = 0;
                int min = marks;
                int max = marks;
                int count = 0;
                while(marks != -1){
                        total+=marks;
                        if(marks>max){
                                max = marks;
                        }else if(marks<min){</pre>
                                min = marks;
                        }
                        System.out.print("Enter subject "+(count+2)+" Marks :");
                        marks = input.nextInt();
                        count++;
                }
                double avarage = (double)total/count;
                System.out.println();
                System.out.println("Total : "+total);
                System.out.println("Max : "+max);
                System.out.println("Min : "+min);
                System.out.println("avarage: "+avarage);
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter Word :");
                String wordInput = input.next();
                String word = wordInput.toLowerCase();
                int length = word.length();
                int count =0;
                for(int i=0,j=(length-1);j>=0;i++,j--){
                        char letterl = word.charAt(i);
                        char letter2 = word.charAt(j);
                        if(letterl==letter2){
                                count++;
                        }
                }
                if(count==length){
                        System.out.println("You Entered palindrome Word");
                }else{
                        System.out.println("You did not Entered palindrome Word");
                }
       }
}
```

}

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter Word :");
                String wordInput = input.next();
                String word = wordInput.toLowerCase();
                System.out.print("Enter character :");
                char charInput = input.next().charAt(0);
                int length = word.length();
                int charCount =0;
                int count =0;
                for(int i=0;i<length;i++){</pre>
                        char letter = word.charAt(i);
                        if(charInput==letter){
                                count++;
                        }
                }
                System.out.println("You Entered "+charInput+" character "+count+" times");
       }
```

```
import java.util.*;
class Example {
    public static void main(String args[]) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter base number :");
        int base = input.nextInt();
        System.out.print("Enter exponent :");
        int expo = input.nextInt();
        int answer = 1;
        for(int i=0;i<expo;i++){
            answer*=base;
        }
        System.out.println("Answe is : "+answer);
    }
}</pre>
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                 Scanner input = new Scanner(System.in);
                 System.out.print("Enter Word :");
                 String wordInput = input.next();
                 String word = wordInput.toLowerCase();
                 int length = word.length();
                 int voCount =0;
                 int count =0;
                 for(int i=0;i<length;i++){</pre>
                         char letter = word.charAt(i);
                         if(letter=='a'|\,|\,letter=='e'|\,|\,letter=='i'|\,|\,letter=='o'|\,|\,letter=='u')\{
                                  count++;
                         }
                 }
                 System.out.println("number of vowels :"+count);
                 System.out.println("number of consonants :"+(length-count));
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter integers 01:");
                int integer1 = input.nextInt();
                System.out.print("Enter integers 02 :");
                int integer2 = input.nextInt();
                while (integer2 != 0) {
                        int temp = integer2;
                        integer2 = integer1 % integer2;
                        integer1 = temp;
                }
                System.out.println("Greatest common deviser is :"+integer1);
        }
}
Question 38
```

B. 012

#### Question 39

12

#### **Question 40**

B. int y = 11;

```
Question 41
```

```
class Example {
        public static void main(String [] args) {
                 for(int i = 0; i < 5; i++){
                          for(int j = 0; j < 5; j++){
                                  System.out.println(i+""+j+""+j+""+i+""+(5-i)+""+j+"""+(5-i)+""+(5-j));\\
                          }
                 }
        }
}
Question 42
class Example {
        public static void main(String [] args) {
                 for(int j = 0; j<10; j++){
                          for(int i = 0; i<10; i++){
                                  System.out.print(" * ");
                          }
                 System.out.println();
                 }
        }
}
Question 43
class Example {
        public static void main(String [] args) {
                 for(int j = 0; j<10; j++){
                          for(int i = 0; i < (j+1); i++){
                                  System.out.print(" * ");
                          }
                 System.out.println();
        }
```

```
import java.util.*;
class Example {
       public static void main(String [] args) {
               Scanner input = new Scanner(System.in);
               System.out.print("Enter the size: ");
               int num = input.nextInt();
               for(int i=0; i<1; i++){
               System.out.print(" * |");
                       for(int j=1; j<=num; j++){
                               System.out.print(" "+j+" ");
                       }
               System.out.println();
               }
               System.out.println("-----");
               for(int i=1; i<=num; i++){
               System.out.print(" "+i+" |");
                       for(int j=1; j<=num; j++){
                               System.out.print(" "+(j*i)+"");
                       }
               System.out.println();
               }
       }
}
```

```
import java.util.*;
class Example {
       public static void main(String [] args) {
               Random number = new Random();
               Scanner input = new Scanner(System.in);
               final int RanNum = number.nextInt(10)+1;
               int num = 0;
               while(num!=RanNum){
                       System.out.print("Guess the number (1-10): ");
                       num = input.nextInt();
                       if(num>RanNum){
                               System.out.println("Too high, try again");
                       }else if(num<RanNum){</pre>
                               System.out.println("Too Low, try again");
                       }
               }
               System.out.println();
               System.out.println("Your Guess is Coerrect. Number is "+RanNum);
       }
}
```

```
import java.util.*;
class Example {
        public static void main(String [] args) {
                 int i = 1;
                 while(i<=100){
                         int count = 0;
                         for(int j = 2; j < i; j++){
                                  if(i%j==0){
                                          count++;
                                  }
                         }
                         if(count==0){
                                  System.out.println(i);
                         }
                 i++;
                 }
        }
}
```

```
import java.util.*;
class Example {
        public static void main(String [] args) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter number : ");
                int inputNum = input.nextInt();
                int num = inputNum;
                int count = 0;
                int total = 0;
                while(num>0){
                        int digit = num%10;
                       int cal = digit*digit*digit;
                        total+=cal;
                        num/=10;
                }
                if(inputNum==total){
                        System.out.println("You Entered Armstrong number");
                }else{
                        System.out.println("You did not Entered Armstrong number");
                }
       }
}
```

```
import java.util.*;
class Example {
        public static void main(String [] args) {
                 boolean status = true;
                int num = 1;
                 while(status){
                         int count = 0;
                         for(int i = 1; i <= 20; i++){
                                 if(num%i==0){
                                         count++;
                                          if(count==20){
                                                  status = false;
                                                  System.out.println(num+" smallest positive number that is evenly divisible by all
of the numbers from 1 to 20 ");
                                         }
                                 }
                         }
                         num++;
                }
        }
}
```

<sup>\*\*</sup> The answer is 232,792,560. This code not Print any value. I think calculation gets too much time or this algorithm not efficient enough to calculate such value. But its working for the example case.

<sup>&</sup>quot;2520 is the smallest number that can be divided by each of the numbers from 1 to 10"

```
import java.util.*;
class Example {
        public static void main(String args[]) {
                Scanner input = new Scanner(System.in);
                System.out.print("Enter Word :");
                String wordInput = input.next();
                String word = wordInput.toLowerCase();
                int length = word.length();
                int voCount =0;
                int count =0;
                for(int i=0;i<length;i++){</pre>
                        char letter = word.charAt(i);
                        if(letter=='a'||letter=='e'||letter=='i'||letter=='o'||letter=='u'){
                                 count++;
                        }
                }
                System.out.println("number of vowels :"+count);
                System.out.println("number of consonants :"+(length-count));
        }
}
```

```
import java.util.*;

class Example {
    public static void main(String args[]) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter base value :");
        int base = input.nextInt();
        System.out.print("Enter Exponent value :");
        int expo = input.nextInt();
        int total = 1;
        for(int i=0;i<expo;i++){
            total*=base;
        }
        System.out.print("Answer is : "+total);
    }
}</pre>
```

```
import java.util.*;
class Example {
        public static void main(String [] args) {
                 for(int i = 1; i<=100; i++){
                         int count = 0;
                         for(int j = 2; j < i; j++){
                                  if(i%j==0){
                                          count++;
                                  }
                         }
                         if(count==0){
                                  System.out.println(i);
                         }
                }
        }
}
```

```
import java.util.*;

class Example {
    public static void main(String[] args) {
        double answer = 0.5;
        int count = 0;
        while(answer<=1){
            double xCode = Math.random();
            double yCode = Math.random();
            answer = Math.sqrt(xCode*xCode+yCode*yCode);
            System.out.println(xCode+", "+yCode);
        }
    }
}</pre>
```

#### **Question 56**

Line 24: a variable didn't initialized a value before enter to the for loop. There is a conditional statement in for loop. So compiler dose not allow to compile. This happen because loop my not run depending on the condition. if so a variable will may not have any value

**Line 25:** b variable didn't initialized a value before enter to the while loop. There is a conditional statement in for loop. So compiler dose not allow to compile. This happen because while loop my not run depending on the condition. if so a variable will may not have any value

**Line 26:** This code do compiles and when the program runs, return 11. This is do while loop. Means loop will run at lease once before checking the condition. so c variable will have an value.

**Line 27 :** Switch is conditional statement. also I dose not have an default value. Means this statement will not run depending on condition. so this program dose not compile.

Line 28: This Switch statement dose have an default statement. So defiantly run. So e variable will have will have the 0 value.

```
import java.util.*;
class Example {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your number : ");
        int num = input.nextInt();
        System.out.println();
        for(int i = num ; i>0 ; i--){
            if(num%i==0){
                System.out.print(i+" ");
            }
        }
    }
}
```

#### **Question 58**

E. The code will compile without error and will print 3 when run.

#### **Question 59**

The program will print 3, 2 when run. After break condition I variable not incremented.

#### **Question 60**

A. {{}} is a valid statement block.

B. { continue; } is a valid statement block.

#### **Question 61**

D. A B 2 A B 2 A B 2 A

A. i=1, j=0

D. i=2, j=1

# **Question 63**

E. Prints A

# **Question 64**

C. Only 5 is printed

# Question 65

A.1011222334