اے انسان تجھ کو اپنے رب کریم کے بارے میں کس چیز نے دھوکے میں ڈال رکھا ہے ۔ الانفطار آیت ٦

It is better to remain silent and be thought a fool than to open one's mouth and remove all doubts. Mark Twain

Solution Homework 07

[Nested Loop, User Function/ Methods]

Note: Task 1-6 should be done using nested loop.

Task 1:

Write a program to input a String and print frequency of all letters within that String. For String **good**

g 1
o 2
o 2
d 1

```
String s;
System.out.print("Enter Word:");
s=in.next();
for (i=0;i<s.length();i++){
      count=0;
      for (j=0;j<s.length();j++)
            if (s.charAt(i)==s.charAt(j))
                  count++;
      System.out.println(s.charAt(i)+"   "+count);
}
```

Task 2:

Write a program to input two Strings and print characters of first string not existing in second string. Use concept of flag in inner loop

```
System.out.print("Enter Word 1:");
s1=in.next();
System.out.print("Enter Word 2:");
s2=in.next();
boolean notCommon;
for (i=0;i<s1.length();i++){
      notCommon=true;
      for (j=0;j<s2.length() && notCommon;j++)
            if (s1.charAt(i)==s2.charAt(j))
                  notCommon=false;
      if (notCommon)
            System.out.print(s1.charAt(i)+"   ");
}
```

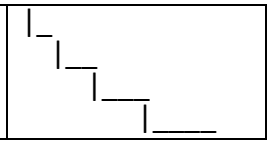
Task 3:

Print pattern given on right hand side. Pseudo code is given in lecture notes.	1 212 32123 4321234 543212345

```
for (i=1;i<=5;i++){
      for (j=5;j>i;j--)
            System.out.print(" ");
      for (j=i;j>0;j--)
            System.out.print(j);
      for (j=2;j<i;j++)
            System.out.print(j);
      System.out.println();
}
```

Task 4:

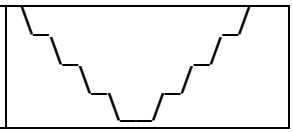
Print pattern given on right hand side.



```
k=1;
for (i=1;i<5;i++){
      for (j=1;j<k;j++)
            System.out.print(" ");
      System.out.print("|");
      for (j=1;j<=i;j++){
            System.out.print("_");
            k++;
      }
      k++;
      System.out.println();
}
```

Task 5:

Print pattern given on right hand side.

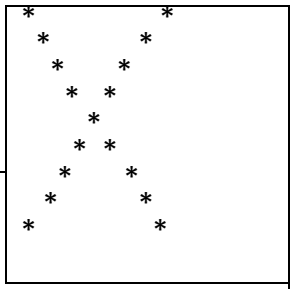


```
m=13;
for (i=1;i<5;i++){
      for (j=1;j<k;j++)
            System.out.print(" ");
      System.out.print("\\_");
      for (j=1;j<m;j++)
            System.out.print(" ");
      k=k+2;
      m=m-4;
      System.out.println("_/");
}
```

Task 6:

Print pattern given on right hand side.

Hint: Use 2 set of nested loops. One for upper portion and second for lower portion.



```
k=1; m=9;
for (i=1;i<=5;i++){
      for (j=1;j<k;j++)
            System.out.print(" ");
      System.out.print("*");
      for (j=1;j<m;j++)
            System.out.print(" ");
      k=k+1;
      m=m-2;
      System.out.println("\b*");
}
k=4;m=3;
for (i=1;i<5;i++){
      for (j=1;j<k;j++)
            System.out.print(" ");
      System.out.print("*");
      for (j=1;j<m;j++)
            System.out.print(" ");
      k=k-1;
      m=m+2;
      System.out.println("\b*");
}
```

User Functions/ Methods

Task 7: Write a function ***void printSpaces(int n)*** to print n number of spaces in same line using System.out.print and loop

```
void printSpaces(int n){
     int i;
     for (i=1;i<=n;i++)
          ? (“ “);
}
```

Task 8: Write a function ***int greaterRandom(int n)*** to receive an integer number and return random number greater than passed number.

```
int greaterRandom(int n){
     Random r=new Random();//import java.util.* on top
int v;
     do{
v=r.nextInt();
}while(v<=n);
return v;
}
```

Task 9:

Write a program ***int factorial (int n)*** to calculate factorial and return factorial of n

```
int factorial(int n){
     int f=1;
for ( ;n>1;n--)
     f=f*n;
return f;
}
```

Task 10:

Write a program ***boolean isAlphabet(char c)*** to find whether c is alphabet or not

```
boolean isAlphabet(char c){
     if ( (c>=’A’ && c<=’Z’) || (c>=’a’ && c<=’z’) )
return true;
     return false;
}
```

Task 11:

Write a program ***boolean isVowel (char c)*** to find whether c is vowel or not

```
boolean isVowel(char c){
     if (c==’a’ || c==’e’ || c==’o’ || c==’i’ || c==’u’)
          return true;
     else if (c==’A’ || c==’E’ || c==’I’ || c==’O’ || c==’U’)
          return true;
     return false;
}
```

Task 12:

Write a program ***boolean isCaptial (char c)*** to find whether c is capital letter or not

```
boolean isCapital(char c){
     if (c>='A' && c<='Z')
return true;
     return false;
}
```

Task 13:

Write a program ***boolean isSamll (char c)*** to find whether c is small letter or not

```
boolean isSmall(char c){
     if (c>='a' && c<='z')
return true;
     return false;
}
```

Task 14:

Write a program ***boolean isNumber (char c)*** to find whether c is capital letter or not

```
boolean isNumber(char c){
     if (c>='0' && c<='9')
return true;
     return false;
}
```

Finally test last 5 functions to categorize vowel, capital, small letter or number for any string.

```
public static void main(String []args){
     System.out.println(isVowel('a')+" "+isVowel('g'));
     System.out.println(isCapital('A')+" "+isCapital('g'));
     System.out.println(isSmall('a')+" "+isSmall('G'));
     System.out.println(isDigit('3')+" "+isDigit('g'));
}
```

---------- **BEST of LUCK** ----------