Experiment No 1

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Aim: - Implement Basic Constructs/Notions like Constants, variables and data types,Operators and Expressions, Branching and looping in Java

Lab Assignments to complete in this session

1. Implement a java program to calculate gross salary and net salary taking the followingdata. Input: empno, empname, basicProcess DA=70% of basic HRA=30% of basicCCA= Rs. 240/- PF=10% of basicPT=Rs.100/-

Code:

```java
import java.util.Scanner;

public class q1
{
    public static void main(String[] args) {
        Scanner obj = new Scanner(System.in);
        String name;
        int salary,ID;
        System.out.println(x:"Enter your name:");
        name = obj.nextLine();
         System.out.println(x:"Enter Employee ID:");
         ID = obj.nextInt();
        System.out.println(x:"Enter your basic salary:");
        salary = obj.nextInt();

        System.out.println("DA:" + 0.7*salary);
        System.out.println("HRA:" + 0.3*salary);
        System.out.println("PF:" + 0.1*salary);

    }
}
```

Output:

```
PS C:\Users\dk\Downloads\java1> java q1
Enter your name:
Divyesh
Enter Employee ID:
116
Enter your basic salary:
50000
DA:35000.0
HRA:15000.0
PF:5000.0
PS C:\Users\dk\Downloads\java1>
```

2. Write menu driven java program which will read a number and should implement following methods
   Factorial ()
   testArmstrong ()
   testPalindrome ()

Code:

```java
q2.java > q2 > main(String[])
1    import java.util.Scanner;
2
3    public class q2 {
     Run | Debug
4        public static void main(String[] args) {
5            Scanner obj = new Scanner(System.in);
6
7            System.out.println(x:"FACTORIAL");
8            int n, i, fact = 1;
9            System.out.println(x:"Enter number:");
10           n = obj.nextInt();
11           for (i = 1; i <= n; i++) {
12               fact = fact * i;
13           }
14           System.out.println("the factorial for " + n + " is " + fact + ".");
15   |
```

```java
        System.out.println(x:"ARMSTRONG");
        int n1,digit,sum=0,temp;
        System.out.println(x:"Enter number:");
        n1 = obj.nextInt();
        temp=n1;
        while(n1>0){
            digit=n1%10;
            sum=sum+(digit*digit*digit);
            n1=n1/10;
        }
        if (sum==temp) {
            System.out.println(x:"its armstrong");

        } else {
            System.out.println(x:"Not a armstrong armstrong");

        }
```

```java
        System.out.println(x:"PALINDROME");
        int n2,rev=0,copy;
        System.out.println(x:"Enter number:");
        n2 = obj.nextInt();
        copy=n2;
        while(n2!=0){

            int remainder = n2 % 10;
            rev = rev * 10 + remainder;
            n2 = n2/10;

        }
        if (copy==rev) {
            System.out.println(x:"its palindrome");

        } else {
            System.out.println(x:"Not a  palindrome");

        }

    }
}
```

Output:

```
PS C:\Users\dk\Downloads\java1> java q2
FACTORIAL
Enter number:
5
the factorial for 5 is 120.
ARMSTRONG
Enter number:
135
Not a armstrong armstrong
PALINDROME
Enter number:
1221
its palindrome
```

3. Write a Java Program to take an integer N and print its first 10 multiples. Each multiple N * i (where 1<=i<=10) should be printed on a new line in the form: N x i =result.

Code:

```java
J q3.java > ...
1    import java.util.Scanner;
2
3    public class q3 {
4
     Run | Debug
5        public static void main(String[] args) {
6            Scanner obj = new Scanner(System.in);
7            int n,i;
8            System.out.println(x:"Enter number:");
9            n = obj.nextInt();
10
11           for(i=1;i<=10;i++){
12               System.out.println(+n+"x"+i+"="+n*i+"");
13           }
14
15       }
```

Output:

```
PS C:\Users\dk\Downloads\java1> java q3
Enter number:
5
5x1=5
5x2=10
5x3=15
5x4=20
5x5=25
5x6=30
5x7=35
5x8=40
5x9=45
5x10=50
```

4. Take input of age of three people by user and determine oldest and youngest among them.

Code:

```java
J q4.java > q4 > main(String[])
1    import java.util.Scanner;
2
3    public class q4 {
     Run | Debug
4        public static void main(String[] args) {
5            Scanner obj = new Scanner(System.in);
6            int n1,n2,n3,i,largest;
7            System.out.println(x:"Enter age of person 1:");
8            n1 = obj.nextInt();
9            System.out.println(x:"Enter age of person 2:");
10           n2 = obj.nextInt();
11           System.out.println(x:"Enter age of person 3:");
12           n3 = obj.nextInt();
13
14           largest = n3 > (n1>n2 ? n1:n2) ? n3:((n1>n2) ? n1:n2);
15           System.out.println("Older"+largest);
16
17           int young = n3 < (n1<n2 ? n1:n2) ? n3:((n1<n2) ? n1:n2);
18           System.out.println("Youngest"+young);
19       }
20
21   }
22
```

Output:

```
PS C:\Users\dk\Downloads\java1> java q4
Enter age of person 1:
18
Enter age of person 2:
35
Enter age of person 3:
45
Older45
Youngest18
```

5. If x = 2
   y = 5
   z = 0
   Then find values of the following expressions:
   x == 2
   x != 5
   c. x != 5 && y >= 5
   d. z != 0 || x == 2
   e. !(y < 10)

Code:

```java
q5.java > ...
1    import java.util.*;
2    class q5{
         Run | Debug
3        public static void main(String args[]){
4            Scanner obj = new Scanner(System.in);
5            int x=2, y=5, z=0;
6            boolean a = (x==2);
7            System.out.println(a);
8            boolean b = (x!=5);
9            System.out.println(b);
10           boolean c = (x!=5 && y>=5);
11           System.out.println(c);
12           boolean d = (z!=0 || x==2);
13           System.out.println(d);
14           boolean e = (!(y<10));
15           System.out.println(e);
16       }
17   }
18
```

Output:

```
PS C:\Users\dk\Downloads\java1> javac q5.java
PS C:\Users\dk\Downloads\java1> java q5
true
true
true
true
false
```

6. A shop will give discount of 10% if the cost of purchased quantity is more than 1000.Ask user for quantity Suppose, one unit will cost 100.Judge and print total cost for u

Code:

```java
q6.java > q6 > main(String[])
1    import java.util.Scanner;
2
3    public class q6{
         Run | Debug
4        public static void main(String[] args) {
5            Scanner scanner = new Scanner(System.in);
6
7            System.out.print(s:"Enter the quantity of items: ");
8            int quantity = scanner.nextInt();
9
10           int unitCost = 100;
11           int total = quantity * unitCost;
12
13           if (total > 1000) {
14               double discount = 0.10 * total;
15               total -= discount;
16               System.out.println(x:"You get a 10% discount!");
17           }
18
19           System.out.println("Total cost: $" + total);
20
21           scanner.close();
22       }
23   }
24
```

Output:

```
PS C:\Users\dk\Downloads\java1> javac q6.java
PS C:\Users\dk\Downloads\java1> java q6
Enter the quantity of items:
6
Total cost: $600
PS C:\Users\dk\Downloads\java1> java q6
Enter the quantity of items: 12
You get a 10% discount!
Total cost: $1080
PS C:\Users\dk\Downloads\java1>
```