

Solution LAB 04 (Selection using If Condition)

یہ دنیا کا تھوڑا سا نامہ ہے پھر آخرت میں تو ان کا ٹھکانا دوزخ ہے اور وہ بری جگہ ہے (آیت نمبر ۱۹ سورۃ ۳)

Albert Einstein A question that sometimes drives me hazy: am I or are the others crazy?

Lab is based on Lecture 7, however prior concepts also required

Task 1: Related to ATM. Randomly generate account balance between 3000 and 20000. If balance is > 10000, show message "Sufficient Balance", otherwise, show message "Sorry! Insufficient Balance"

Run program for number of times to get both messages.

```
int balance=(int) ((Math.random()*20000)+3000);
if(balance>10000){
    System.out.println("Sufficient Balance!");
}
else
System.out.println("Sorry! Insufficient Balance");
```

Task 2: Write program to generate age randomly between 5 to 45 and print messages according to criteria:

| | |
|----------------|-------------|
| age < 10 | Child |
| 10 <= age < 20 | Teenage |
| 20 <= age < 40 | Young |
| >=40 | Above Young |

```
int age=(int) ((Math.random()*45)+5);

if(age < 10){
    System.out.println("Child");
}
else if(age >= 10 && age < 20){
    System.out.println("Teenage");
}
else if(age >= 20 && age < 40){
    System.out.println("Young");
}
else if(age >= 40){
    System.out.println("Above Young");
}
```

Task 3: Generate 3 numbers randomly without any range and print them in ascending order?

```
double r1=Math.random();
double r2=Math.random();
double r3=Math.random();
if(r1<r2 && r2<r3)
    System.out.println(r1+"\t"+r2+"\t"+r3);
else if(r1<r2 && r3<r2)
    System.out.println(r1+"\t"+r3+"\t"+r2);
if(r2<r1 && r1<r3)
    System.out.println(r2+"\t"+r1+"\t"+r3);
else if(r2<r1 && r3<r1)
    System.out.println(r2+"\t"+r3+"\t"+r1);
if(r3<r1 && r1<r2)
```

```

        System.out.println(r3+"\t"+r1+"\t"+r2);
    else if(r3<r1 && r2<r1)
        System.out.println(r3+"\t"+r2+"\t"+r1);
    
```

Task 4: Input salary as input and calculate salary using formulas?

salary < 200000 tax = 10% - salary < 300000 tax = 15% - otherwise tax = 20%

```

System.out.print("Please enter Salary:");
Scanner scan=new Scanner(System.in);
int salary=scan.nextInt();
double tax=0.0;
if(salary<200000)
    tax=0.1;
else if(salary<300000)
    tax=0.15;
else
    tax=0.2;
System.out.println("Tax is:"+tax);
    
```

Task 5: Complete code written inside main function to show output given on right hand side. Here same data is shown twice, first ordering is done on the basis of salary; whereas; in second ordering is done on the basis of name?

```

String s1="Ahmad Kamal", s2="Amjad Hussain";
int salary1=30000, salary2=28000;
    
```

Note: Use if condition to show output, don't write hard code

```

String s1="Ahmad Kamal", s2="Amjad Hussain";
int salary1=30000, salary2=28000;
System.out.println("Salary wise:");
if(salary1<salary2){
    System.out.println(s1+"\t"+salary1);
    System.out.println(s2+"\t"+salary2);
}
else
{
    System.out.println(s2+"\t"+salary2);
    System.out.println(s1+"\t"+salary1);
}

System.out.println("Name Wise:");
if(s1.compareTo(s2)<0){
    System.out.println(s1+"\t"+salary1);
    System.out.println(s2+"\t"+salary2);
}
else if(s1.compareTo(s2)==0 || s1.compareTo(s2)>0)
{
    System.out.println(s2+"\t"+salary2);
    System.out.println(s1+"\t"+salary1);
}
    
```

| | | |
|---------------|-------|--|
| Salary wise: | | |
| Amjad Hussain | 28000 | |
| Ahmad Kamal | 30000 | |
| Name wise: | | |
| Ahmad Kamal | 30000 | |
| Amjad Hussain | 28000 | |

Task 6: Complete code to print Truth Table as shown using composite if condition:

```

boolean a=true, b=true;
...
...
a = true, b = false;
    
```

| A | B | A and B |
|-------|-------|---------|
| true | true | true |
| true | false | false |
| false | true | false |
| false | false | false |

| | | | |
|-----|-------|-------|--------|
| ... | A | B | A or B |
| ... | true | true | true |
| | true | false | true |
| | false | true | true |
| | false | false | false |

Note: First complete and table than print or table. Use \t for formatting

```

System.out.println("A\tB\tA and B");
System.out.println("-----");
boolean a=true, b=true;
if(a==true && b==true){
    System.out.println("true\ttrue\ttrue");
}
a=true;
b=false;
if(a==true && b==false){
    System.out.println("true\tfalse\tfalse");
}
a=false;
b=true;
if(a==false && b==true){
    System.out.println("false\ttrue\tfalse");
}
a=false;
b=false;
if(a==false && b==false){
    System.out.println("false\tfalse\tfalse");
}

System.out.println("\n");
System.out.println("A\tB\tA or B");
System.out.println("-----");
a=true;
b=true;
if(a==true || b==true){
    System.out.println("true\ttrue\ttrue");
}
a=true;
b=false;
if(a==true || b==false){
    System.out.println("true\tfalse\ttrue");
}
a=false;
b=true;
if(a==false || b==true){
    System.out.println("false\ttrue\ttrue");
}
a=false;
b=false;
if(a==false || b==false){
    System.out.println("false\tfalse\tfalse");
}
    
```