Tutorial 2

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Q1

```java
import java.util.Scanner;
public class Tut_2_1{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        System.out.print("Enter num1 :");
        double num1 = input.nextDouble();
        System.out.print("Enter num2 :");
        double num2 = input.nextDouble();
        double sum = num1 + num2 ;
        System.out.println(num1+" + " + num2+" = "+sum);
    }
}
```

Q2

```java
import java.util.Scanner;
public class Tut_2_2{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your age : ");
        int age = input.nextInt();
        if(age>=18){
            System.out.println("Over 18");
        } else if (age>=0) {
            System.out.println("Under 18");
        }else{
            System.out.println("The age entered is incorrect.");
        }
    }
}
```

Q3

```java
import java.util.Scanner;
public class Tut_2_3{
    public static void main(String[] args){
        double finalMark;
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your CW marks  : ");
        float cwMarks = input.nextFloat();
        System.out.print("Enter your ICT marks : ");
        float ictMarks = input.nextFloat();
        if (cwMarks>=30 && ictMarks>=30){
            finalMark = (ictMarks+cwMarks)/2;
            if (finalMark>=40){
                System.out.println("Pass\n"+finalMark);
            }
        }else {
            System.out.println("Fail");
        }
    }
}
```

Q4

```java
import java.util.Scanner;
public class Tut_2_4{
    public static void main(String[] args){
        String classification = "";
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your score : ");
        int score = input.nextInt();
        if(score>100 || score<40){
            classification = "Invalid Value";
        } else if (score>=70 ) {
            classification = "1st Class Honours (1)";
        } else if (score>=60) {
            classification = "2nd Class Honours Upper Division (2:i)";
        } else if (score>=50) {
            classification = "2nd Class Honours Lower Division (2:ii)";
        } else{
            classification = "3rd Class Honours (3)";
        }
        System.out.println(classification);
    }
}
```

Q5

```java
import java.util.Scanner;
public class Tut_2_5{
    public static void main(String[] args){
        float ans = 0;
        Scanner input = new Scanner(System.in);
        System.out.print("Enter first number     : ");
        float num1 = input.nextFloat();
        System.out.print("Enter operator(+,-,*,/): ");
        String operator = input.next();
        System.out.print("Enter second number    : ");
        float num2 = input.nextFloat();
        switch (operator){
            case "+":
                ans = num1 + num2 ;
                break;
            case "-":
                ans = num1 - num2 ;
                break;
            case "*":
                ans = num1 * num2 ;
                break;
            case "/":
                ans = num1 / num2 ;
                break;
        }
        System.out.println(num1+" "+operator+" "+num2+" = "+ans);

    }
}
```

Q6

```java
import java.util.Scanner;
public class Tut_2_6{
    public static void main(String[] args){
        String msg ="";
        Scanner input = new Scanner(System.in);
        System.out.print("Number of class held    : ");
        float totCls = input.nextInt();
        System.out.print("Number of class attended : ");
        float attCls = input.nextInt();
        float atdPc = (attCls/totCls)*100;
        if(atdPc>=75){
            msg = "You are allowed to sit in exam.";
        }else{
            System.out.print("Had a medical cause ?(Y/N) ");
            String med = input.next();
            if(med.equals("Y")) {
                msg = "Pls. contact SRU ";
            } else if (med.equals("N")) {
                msg = "You are not allowed to sit in exam.";
            }
        }
        System.out.println("Your attendance percentage is
"+atdPc+"%\n"+msg);
    }
}
```

Q7 Banking System

```java
import java.util.Scanner;
public class Tut_2_7{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your account balance :");
        float accBalance = input.nextFloat();
        Boolean exit = false ;
        while(!exit){
            System.out.print("Enter a number according to this menu -\n 1 -
Deposit money\n 2 - Withdraw money\n" +
                    " 3 - Fraud check\n 4 - Exit\n");
            String selection = input.next();
            float dep ;
            float wid ;
            float frdLimit = 1000;
            switch(selection){
                case "1":
                    System.out.print("Deposit : ");
                    dep = input.nextFloat();
                    accBalance += dep;
                    break;
                case "2":
                    System.out.print("Withdraw : ");
                    wid = input.nextFloat();
                    if(accBalance-wid<=0){
                        System.out.println("You can't withdraw money. Your
account balance = "+accBalance);
                    }else{
                        accBalance -= wid;
                    }
                    break;
                case "3":
                    if (frdLimit>accBalance) {
                        System.out.println("Warning: Your account balance
is low. Please be cautious of potential fraud.");
                    }else{
                        System.out.println("Your account is safe");
                    }
                    break;
                case "4":
                    System.out.println("your account balance is
Rs."+accBalance+"\nExiting...");
                    exit = true;
                    break;

            }

        }

    }
}
```

Q7 Rock Paper Scissor Game

```java
import java.util.Scanner;
import java.util.Random;
public class Tut_2_8{
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        Random random = new Random();
        String user = "";
        String rand = "";
        String winner = "";
        int randomNum = random.nextInt(3);
        System.out.print(" 0 --> Rock\n 1 --> Paper\n 2 --> Scissors\nEnter
your choice : ");

        if (randomNum ==0){
            rand = "Rock";
        } else if (randomNum==1) {
            rand = "Paper";
        } else {
            rand = "Scissor";
        }

        int userChoice = input.nextInt();
        if (userChoice ==0){
            user = "Rock";
        } else if (userChoice==1) {
            user = "Paper";
        } else if (userChoice==2) {
            user = "Scissor";
        } else {
            System.out.println("Invalid input!");
        }

        if(randomNum == userChoice){
            System.out.println("Tie\n");
            System.out.print("user     : "+user);
            System.out.print("computer : "+rand);
        } else if ((userChoice==0 && randomNum==2) ||(userChoice==2
&&randomNum==1) ||(userChoice==1 && randomNum==0)) {
            winner = "User";
        }else if ((randomNum==0 && userChoice==2) ||(randomNum==2 &&
userChoice==1) ||(randomNum==1 && userChoice==0)) {
            winner = "Computer";
        }
        System.out.println("Winner is "+winner);
        System.out.println("User     :"+user);
        System.out.println("Computer :"+rand);

    }
}
```

Q8

Program B and C are equivalent.
Program A the condition part is different.

Q9

```
int i = 1;
i += ++i + i++ + ++i;
int j = 1;
j += ++j +j++ ++j;
int k = 1;
k += k++ + k++ + ++k;
System.out.println("i = " + i);
System.out.println("j = " + j);
System.out.println("k = " + k);
```

Q10

if (age < 17 || age > 85)
{ // don't drive!}