



**INSTITUTE OF SOFTWARE ENGINEERING**

**GRADUATE DIPLOMA IN SOFTWARE ENGINEERING**

NAME : M.W.Maheeshi Jayarathna

Batch No : GDSE61

```
import java.util.*;
```

```
class Example{
```

```

public static void main(String args[]){

    Scanner input=new Scanner(System.in);

    String[][] details=new String[2][0];

    double[][] marks=new double[2][0];

    char ch='a';

    String id,name;

    double prf,dbms;

    boolean bool;

    while(true){

        System.out.println("-----
---");

        System.out.println("|\\t\\t\\tWELCOME TO GDSE MARKS MANAGEMENT
SYSTEM\\t\\t\\t|");

        System.out.println("-----
---");

        System.out.println();

        System.out.print(" [1] Add New Student \\t\\t\\t [2] Add New Student With Marks
\\n [3] Add Marks \\t\\t\\t\\t [4] Update Student Details \\n ");

        System.out.println("[5] Update Marks \\t\\t\\t [6] Delete Student \\n [7] Print
Student Details \\t\\t [8] Print Student Ranks \\n [9] Best in Programming Fundamental \\t [10] Best in
Database Management System");

        System.out.println();

        System.out.print("Enter an option to continue > ");

        int option=input.nextInt();

        clearConsole();

        switch(option){

            case 1:

                F:while(true){

                    System.out.println("-----
---");

                    System.out.println("|          ADD NEW STUDENT
|");

```

```

--");

System.out.println("-----");

System.out.println();

while(true){

    System.out.print("Enter Student ID : ");

    id=input.next();

    bool=searchIdExists(details,id);

    if(bool){

        System.out.print("Enter Student Name :

");

        name=input.next();

        details=pushToDetailsArray(details,id,name);

        marks=pushMarksArray(details[0].length,marks,-1,-1);

        break;

    }else{

        System.out.println("The Student ID

already exists\n");

    }

}

System.out.println();

while(true){

    System.out.print("Student has been added

successfully. Do you want to add a new student(y/n) : ");

    ch=input.next().charAt(0);

    if(ch=='y'){

        continue F;

    }else if(ch=='n'){

        clearConsole();

        break F;

```

```

                                }else{
                                    System.out.println();
                                    System.out.println("Enter Valied
Option.");
                                }
                            }
                        }
                    break;
                case 2:
                    F:while(true){
                        System.out.println("-----
--");
                        System.out.println("|      ADD NEW STUDENT WITH
MARKS      |");
                        System.out.println("-----
--");
                        System.out.println();
                        while(true){
                            System.out.print("Enter Student ID : ");
                            id=input.next();
                            bool=searchIdExists(details,id);
                            if(bool){
                                break;
                            }else{
                                System.out.println("The Student ID
already exists\n");
                            }
                        }
                    }
                    System.out.print("Enter Student Name : ");
                    name=input.next();

```

```

System.out.println();
while(true){
    System.out.print("Programming Fundamental

Marks : ");

    prf=input.nextDouble();
    if(0<=prf && 100>=prf){
        break;
    }else{
        System.out.println("Invalid marks ,

please enter corret marks.");

        System.out.println();
    }
}

while(true){
    System.out.print("Database Management

System Marks : ");

    dbms=input.nextDouble();
    if(0<=dbms && 100>=dbms){
        break;
    }else{
        System.out.println("Invalid marks ,

please enter corret marks.");

        System.out.println();
    }
}

details=pushToDetailsArray(details,id,name);

marks=pushMarksArray(details[0].length,marks,prf,dbms);

while(true){
    System.out.print("Student has been added
successfully. Do you want to add a new student(y/n) : ");

```

Option.");

--");

|");

--");

```
        ch=input.next().charAt(0);
        if(ch=='y'){
            clearConsole();
            continue F;
        }else if(ch=='n'){
            break F;
        }else{
            System.out.println();
            System.out.println("Enter Valied
Option.");
        }
    }
}
break;
case 3:
    F:while(true){
        System.out.println("-----
--");
        System.out.println("|          ADD MARKS
|");
        System.out.println("-----
--");
        System.out.println();

        S:while(true){
            System.out.print("Enter Student ID : ");
            id=input.next();
            int index=searchEliments(details,id);
            if(index===-20){
                while(true){
```

Student ID. Do you want to search again ? (y/n ");

System.out.println("Enter Valied Option.");

"+details[1][index]);

Fundamental Marks : ");

System.out.println("Invalid marks , please enter corret marks.");

System.out.print("Invalid

ch=input.next().charAt(0);

System.out.println();

if(ch=='y'){

continue S;

}else if(ch=='n'){

clearConsole();

break F;

}else{

System.out.println();

}

}

}else{

System.out.println("Student Name\t :

System.out.println();

while(true){

System.out.print("Programming

prf=input.nextDouble();

if(0<=prf && 100>=prf){

break;

}else{

System.out.println();



```

    }
}
while(true){
    System.out.print("Database
Management System Marks : ");

    dbms=input.nextDouble();
    if(0<=dbms && 100>=dbms){
        break;
    }else{

        System.out.println("Invalid marks , please enter corret marks.");

        System.out.println();
    }
}

marks=pushMarksArray(details[0].length,marks,prf,dbms);

    System.out.println();
    System.out.print("Marks have been
added. Do you want to add marks for anothor student ? (y/n) ");
}
while(true){
    ch=input.next().charAt(0);
    if(ch=='y'){
        clearConsole();
        continue F;
    }else if(ch=='n'){
        break F;
    }else{
        System.out.println();

```

```

Valied Option.");
                                System.out.println("Enter
                                }
                                }
                                }
                                break;
case 4:
    F:while(true){
        System.out.println("-----
--");
        System.out.println("|      UPDATE STUDENT DETAILS
|");
        System.out.println("-----
--");

        System.out.println();
        S:while(true){
            System.out.print("Enter Student ID : ");
            id=input.next();
            int index=searchEliments(details,id);
            if(index== -20){
                System.out.print("Invalid
Student ID. Do you want to search again ? (y/n) ");

                while(true){

                    System.out.print("Invalid Student ID. Do you want to search again ? (y/n) ");

                    ch=input.next().charAt(0);

                    System.out.println();
                    if(ch=='y'){
                        continue S;

```



```

    }else{
        System.out.println();

        System.out.println("Enter Valied Option.");

    }

}

}

}

}

}

break;

case 5:
    F:while(true){
        System.out.println("-----");

        System.out.println("|          UPDATE MARKS");

        System.out.println("-----");

        System.out.println();

        S:while(true){
            System.out.print("Enter Student ID : ");
            id=input.next();
            int index=searchEliments(details,id);
            if(index== -20){
                System.out.println("Invalid Student ID.

Do you want to search again ? (y/n) ");

                while(true){

```

```

System.out.print("Invalid Student ID. Do you want to search again ? (y/n) ");

ch=input.next().charAt(0);

System.out.println();
if(ch=='y'){
    continue S;
}else if(ch=='n'){
    clearConsole();
    break F;
}else{

System.out.println();

System.out.println("Enter Valied Option.");

}

}

}else{
    System.out.println("Student Name\t :
"+details[1][index]);

}

if(marks[0][index]==-1 && marks[1][index]==-
1){

while(true){
    System.out.println();
    System.out.println("This
student's marks not yet to be added.");

    System.out.print("Do you want
to update the marks of another student ? (y/n) ");

    ch=input.next().charAt(0);
    System.out.println();
    if(ch=='y'){

```

```

        continue S;
    }else if(ch=='n'){
        clearConsole();
        break F;
    }else{
        System.out.println();
    }
}

System.out.println("Enter Valied Option.");

}

}

while(true){
    System.out.print("Enter New
Programming Fundamental Marks : ");

    prf=input.nextDouble();
    if(0<=prf && 100>=prf){
        break;
    }else{
        System.out.println("Invalid marks , please enter corret marks.");
        System.out.println();
    }
}

while(true){
    System.out.print("Enter New Database
Management System Marks : ");

    dbms=input.nextDouble();
    if(0<=dbms && 100>=dbms){
        break;
    }else{

```

marks , please enter corret marks.");

```
System.out.println("Invalid
```

```
System.out.println();
```

```
}
```

```
}
```

```
marks[0][index]=prf;
```

```
marks[1][index]=dbms;
```

successfully.");

```
System.out.println("Marks have been updated
```

author student ? (y/n) ");

```
System.out.print("Do you want to Update
```

```
while(true){
```

```
ch=input.next().charAt(0);
```

```
if(ch=='y'){
```

```
clearConsole();
```

```
continue F;
```

```
}else if(ch=='n'){
```

```
clearConsole();
```

```
break F;
```

```
}else{
```

```
System.out.println();
```

Valied Option.");

```
System.out.println("Enter
```

```
}
```

```
}
```

```
}
```

```
}
```

```
break;
```

case 6:

```
F:while(true){
```

--");

|");

--");

```
System.out.println("-----
```

```
System.out.println("|          DELETE STUDENT
```

```
System.out.println("-----
```

```
System.out.println();
```

```
S:while(true){
```

```
    System.out.print("Enter Student ID : ");
```

```
    id=input.next();
```

```
    int index=searchEliments(details,id);
```

```
    if(index==20){
```

```
        while(true){
```

```
            System.out.print("Invalid
```

Student ID. Do you want to search again ? (y/n) ");

```
            ch=input.next().charAt(0);
```

```
            System.out.println();
```

```
            if(ch=='y'){
```

```
                continue S;
```

```
            }else if(ch=='n'){
```

```
                clearConsole();
```

```
                break F;
```

```
            }else{
```

```
                System.out.println();
```

```
System.out.println("Enter Valied Option.");
```

```
        }
```

```
    }
```

```
    }else{
```



```
String[2][arraySize-1];
```

```
double[2][arraySize - 1];
```

```
details[0][i];
```

```
details[1][i];
```

```
marks[0][i];
```

```
marks[1][i];
```

```
deleted successfully.");
```

```
to Search anothor student ? (y/n) ");
```

```
int arraySize=details[0].length;
```

```
String[][] tempForDetails = new
```

```
double[][] tempForMarks = new
```

```
for (int i=0,x=0 ; i<arraySize ; i++) {
```

```
    if (i == index){
```

```
        continue;
```

```
    }
```

```
    tempForDetails[0][x] =
```

```
    tempForDetails[1][x] =
```

```
    tempForMarks[0][x] =
```

```
    tempForMarks[1][x] =
```

```
    x++;
```

```
}
```

```
details = tempForDetails;
```

```
marks = tempForMarks;
```

```
System.out.println("Student has been
```

```
while(true){
```

```
    System.out.print("Do you want
```

```
    ch=input.next().charAt(0);
```

```
    if(ch=='y'){
```

```
        clearConsole();
```

```
        continue F;
```

```
    }else if(ch=='n'){
```

```
        clearConsole();
```

```

                                break F;
                                }else{
                                    System.out.println();
System.out.println("Enter Valied Option.");
                                }
                            }
                        }
                    }
                }
            }
        }
    }
}

break;

case 7:
    F:while(true){
        System.out.println("-----");
--");
        System.out.println("|          PRINT STUDENT DETAILS
|");
        System.out.println("-----");
--");
        System.out.println();

        S:while(true){
            System.out.print("Enter Student ID : ");
            id=input.next();
            int index=searchEliments(details,id);
            if(index== -20){
                while(true){
System.out.print("Invalid Student ID. Do you want to search again ? (y/n) ");
                System.out.println();

```

```
ch=input.next().charAt(0);
```

```
if(ch=='y'){  
    continue S;  
}else if(ch=='n'){  
    clearConsole();  
    break F;  
}else{
```

```
System.out.println();
```

```
System.out.println("Enter Valied Option.");
```

```
}
```

```
}
```

```
}else if(marks[0][index]==-2 &&
```

```
marks[1][index]==-2){
```

```
System.out.println("This
```

```
student's marks not yet to be added.");
```

```
System.out.print("Do you want
```

```
to search again ? (y/n) ");
```

```
while(true){
```

```
System.out.println();
```

```
ch=input.next().charAt(0);
```

```
if(ch=='y'){  
    continue S;  
}else if(ch=='n'){  
    clearConsole();  
    break F;  
}else{
```

```
System.out.println();
```

```

        System.out.println("Enter Valied Option.");

    }

}

}else{

    System.out.println("Student Name\t :

"+details[1][index]);

    System.out.println("-----+-----+");

    Fundamentals Marks \t\t\t "+(marks[0][index])+" | ";

    Management System Marks \t\t\t "+marks[1][index]+" | ";

    \t\t\t\t\t "+(total[index])+" | ";

    \t\t\t\t\t\t\t "+((total[index])/2)+" | ";

    "+rank[index]+" | ";

    -----+-----+");

    double[] total=getTotalArray(marks);
    int[] rank=getRankArray(total);
    System.out.println(" | Programming

    System.out.println(" | Database

    System.out.println(" | Total

    System.out.println(" | Avg. Marks

    System.out.println(" | Rank \t\t\t\t\t\t\t

    System.out.println("-----+-----+

    System.out.println();

}

while(true){

    System.out.print("Do you want to

    Search anothor student ? (y/n) ");

    ch=input.next().charAt(0);

    if(ch=='y'){

        clearConsole();

```

```

        continue F;
    }else if(ch=='n'){
        clearConsole();
        break F;
    }else{
        System.out.println();
        System.out.println("Enter
Valied Option.");
    }
}
}
}
break;
case 8:
    F:while(true){
        System.out.println("-----");
        --");
        System.out.println("|          PRINT STUDENT RANKS
|");
        System.out.println("-----");
        --");
        System.out.println();
        if(marks[0].length==0){
            System.out.println("Student have not yet been
added");
        }else{
            System.out.println("+----+-----+-----+
-----+-----+-----+");

```

```
ch=input.next().charAt(0);
```

```

        if(ch=='y'){
            clearConsole();
            continue F;
        }else if(ch=='n'){
            clearConsole();
            break F;
        }else{
            System.out.println();
            System.out.println("Enter Valied
Option.");
        }
    }
}
break;
case 9:
    F:while(true){
        System.out.println("-----
--");
        System.out.println("|    BEST IN PROGRAMMING
FUNDAMENTALS    |");
        System.out.println("-----
--");
        System.out.println();
        if(marks[0].length==0){
            System.out.println("Student's marks not
added");
        }else{
            System.out.println("+-----+-----+--
-----+-----+");
            System.out.println("| ID\t| Name\t\t\t| PF
Marks|DBMS Marks|");

```

```
-----+-----+");
```

```
marks[1][index] != -1 && index != -20){
```

```
    System.out.print(" | "+details[0][index]+"\\t| ");
```

```
    System.out.print(details[1][index]+"\\t\\t| ");
```

```
    System.out.print(marks[0][index]+" | ");
```

```
    System.out.println(marks[1][index]+" | ");
```

```
System.out.println("-----+-----+--
```

```
double[] prfArray=marks[0];
```

```
int[] rank=getRankArray(prfArray);
```

```
for(int i = 1 ; i <= rank.length ; i++){
```

```
    int index=searchElimentForRank(rank,i);
```

```
    if(marks[0][index] != -1 &&
```

```
    }
```

```
}
```

```
System.out.println("-----+-----+--
```

```
-----+-----+");
```

```
}
```

```
while(true){
```

```
    System.out.print("Do you want to go back to
```

```
main menu ? (y/n) ");
```

```
    ch=input.next().charAt(0);
```

```
    if(ch=='y'){
```

```
        clearConsole();
```

```
        continue F;
```

```
    }else if(ch=='n'){
```

```
        clearConsole();
```

```
        break F;
```

```
    }else{
```



```

                                System.out.println();
                                System.out.println("Enter Valied

Option.");

                                }

                                }

                                }

                                break;
case 10:
    F:while(true){
        System.out.println("-----

--");

        System.out.println("|    BEST IN DATABASE

MANAGEMENT SYSTEM    |");

        System.out.println("-----

--");

        System.out.println();

        if(marks[0].length==0){
            System.out.println("Student's marks not

added");

        }else{
            System.out.println("+-----+-----+--

-----+-----+");

            System.out.println("| ID\t| Name\t\t\t| DBMS

Marks| PF Marks |");

            System.out.println("+-----+-----+--

-----+-----+");

            double[] dbmsArray=marks[0];
            int[] rank=getRankArray(dbmsArray);
            for(int i = 1 ; i <= rank.length ; i++){

```

```

marks[1][index] != -1 && index != -20){

    System.out.print("|"+details[0][index]+"\\t|");

    System.out.print(details[1][index]+"\\t\\t|  ");

    System.out.print(marks[1][index]+" | ");

    System.out.println(marks[0][index]+" | ");

                                }
                                }
                                System.out.println("+-----+-----+-----+---
-----+-----+");

                                }
                                while(true){

                                System.out.print("Do you want to go back to

                                ch=input.next().charAt(0);

                                if(ch=='y'){

                                    clearConsole();

                                    continue F;

                                }else if(ch=='n'){

                                    clearConsole();

                                    break F;

                                }else{

                                    System.out.println();

                                    System.out.println("Enter Valied

                                Option.");

                                }

                                }
}

```

```

        }
        break;
    }
    clearConsole();
}
}

public static boolean searchIdExists(String[][] details,String id){
    for (int i = 0; i < details[0].length; i++){
        if(id.equals(details[0][i])){
            return false;
        }
    }
    return true;
}

public static String[][] pushToDetailsArray(String[][] details,String id,String name){
    String[][] tempArray=new String[2][details[0].length+1];
    for (int i = 0; i < details[0].length; i++){
        tempArray[0][i]=details[0][i];
        tempArray[1][i]=details[1][i];
    }
    tempArray[0][tempArray[0].length-1]=id;
    tempArray[1][tempArray[1].length-1]=name;
    return tempArray;
}

public static double[] getTotalArray(double[][] marks){
    double[] tempForTotal=new double[marks[0].length];
    for(int i=0;i<tempForTotal.length;i++){
        tempForTotal[i]=marks[0][i]+marks[1][i];
    }
}

```

```

    }
    return tempForTotal;
}

public static int[] getRankArray(double[] resevArray){
    int[] rankArray=new int[resevArray.length];
    for (int i = 0; i <resevArray.length ; i++){
        int rank=rankArray.length;
        for(int j = 1; j <= resevArray.length ; j++){
            if(resevArray[i]>resevArray[j-1]){
                rank--;
            }
        }
        rankArray[i]=rank;
    }
    return rankArray;
}

public static double[][] pushMarksArray(int arraySize,double[][] marks,double prf,double dbms){
    double[][] tempArray=new double[2][arraySize];
    for (int i = 0; i < marks[0].length; i++){
        tempArray[0][i]=marks[0][i];
        tempArray[1][i]=marks[1][i];
    }
    tempArray[0][tempArray[0].length-1]=prf;
    tempArray[1][tempArray[1].length-1]=dbms;
    return tempArray;
}

public static int searchEliments(String[][] details,String id){
    int index=-20;
    for (int i = 0; i < details[0].length ; i++){

```

```

        if(details[0][i].equals(id)){
            index=i;
            break;
        }
    }
    return index;
}

public static int searchElimentForRank(int[] rank,int dex){
    int index=-20;
    for (int i = 0; i < rank.length ; i++){
        if(dex==rank[i]){
            index=i;
            break;
        }
    }
    return index;
}

public final static void clearConsole() {
    try {
        final String os = System.getProperty("os.name");
        if(os.contains("Windows")){
            new ProcessBuilder("cmd", "/c", "cls").inheritIO().start().waitFor();
        }else{
            System.out.print("\033[H\033[2J");
            System.out.flush();
        }
    }
    catch (final Exception e) {
        e.printStackTrace();
    }
}

```

}

}