import java.util.\*;

class Demo

{

public static void main(String [] args)

{

String[][]  my\_array = new String[1][10];

my\_array = mainmenu(my\_array);

}

public static String[][] mainmenu(String[][] Student)

{

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

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

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

System.out.print("\n[1]  Add New Student");

System.out.println("\t\t\t[2]  Add New Student With Marks");

System.out.print("[3]  Add Marks");

System.out.println("\t\t\t\t[4]  Update Student Details");

System.out.print("[5]  Update Marks");

System.out.println("\t\t\t[6]  Delete Student");

System.out.print("[7]  Print Student Details");

System.out.println("\t\t[8]  Print Student Ranks");

System.out.print("[9]  Best in Programing Fundamentals");

System.out.println("\t[10] Best in Database Management System");

System.out.println();

Scanner sc = new Scanner(System.in);

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

int option = sc.nextInt();

switch(option)

{

case 1 :

clearConsole();

Student = AddNewStudent(Student);

clearConsole();

mainmenu(Student);

return Student;

case 2 :

      clearConsole();

Student = AddNewStudentWithMark(Student);

clearConsole();

mainmenu(Student);

return Student;

case 3 :

      clearConsole();

Student = AddMark(Student);

clearConsole();

mainmenu(Student);

return Student;

case 4 :

      clearConsole();

Student = UpdateStudentDetails(Student);

clearConsole();

mainmenu(Student);

return Student;

case 5 :

      clearConsole();

Student = UpdateMarks(Student);

clearConsole();

mainmenu(Student);

return Student;

case 6 :

      clearConsole();

Student = DeleteStudent(Student);

clearConsole();

mainmenu(Student);

return Student;

case 7 :

      clearConsole();

Student = PrintStudentDetails(Student);

clearConsole();

mainmenu(Student);

return Student;

case 8 :

      clearConsole();

Student = PrintStudentRanks(Student);

clearConsole();

mainmenu(Student);

return Student;

case 9 :

      clearConsole();

Student = BestinProgrammingFundamentals(Student);

clearConsole();

mainmenu(Student);

return Student;

case 10 :

clearConsole();

Student = BestinDatabaseManagementSystem(Student);

clearConsole();

mainmenu(Student);

return Student;

}

return Student;

}

public static String[][] AddNewStudent(String[][] Student)

{

Scanner sc = new Scanner(System.in);

String[][] Student\_Details=Student;

String[][] tp= new String [Student\_Details.length+1][10];

String Ntw = "y";

while(Ntw.equals("y") || Ntw.equals("Y"))

{

  Addstudent();

for (int x=0; x<tp.length-1; x++)

{

for (int y=0; y<10; y++)

{

tp[x][y] = Student\_Details[x][y];

}

}

Student\_Details = tp;

boolean isCorrect = true;

while(isCorrect)

{

System.out.print("\nEnter Student ID    :  ");

String ID = sc.next();

boolean IdUnique = IdUnique(Student\_Details,ID);

if(IdUnique)

{

System.out.print("The Student ID already exists\n");

}

else

{

for(int a = Student\_Details.length-1;a<Student\_Details.length;a++)

{

Student\_Details[a][0] = ID;

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

String Name = sc.next();

Student\_Details[a][1] = Name;

}

}

isCorrect = IdUnique;

}

System.out.print("\nStudent has been added successfully.");

System.out.print("\tDo you want to add a new student  (y/n) : ");

Ntw=sc.next();

clearConsole();

}

return Student\_Details;

}

public static void Addstudent()

{

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

System.out.println("\t"+"|"+"\t\t\tADD NEW STUDENT\t\t\t\t"+"|");

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

System.out.println();

}

public static String[][] AddNewStudentWithMark(String[][] Student)

{

Scanner sc = new Scanner(System.in);

String[][] Student\_Details=Student;

String answor = "y";

while(answor.equals("y"))

{

AddStudentNew();

String[][] tp= new String [Student\_Details.length+1][10];

for (int x=0; x<tp.length-1; x++)

{

for (int y=0; y<10; y++)

{

tp[x][y] = Student\_Details[x][y];

}

}

Student\_Details = tp;

boolean isCorrect = true;

while(isCorrect)

{

System.out.print("\nEnter Student ID    :  ");

String ID = sc.next();

boolean IdUnique = IdUnique(Student\_Details,ID);

if(IdUnique)

{

System.out.print("The Student ID already exists\n");

}

else

{

for(int a = Student\_Details.length-1;a<Student\_Details.length;a++)

{

Student\_Details[a][0] = ID;

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

String Name = sc.next();

Student\_Details[a][1] = Name;

boolean flag = true;

while(flag)

{

System.out.print("\n"+"Programming Fundementals Marks    : ");

int PRF=sc.nextInt();

boolean Prf\_Mark = PRF>0 && PRF<100;

if(Prf\_Mark)

{

Student\_Details[a][2] = Integer.toString(PRF);

flag = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks.\n ");

flag = true;

}

}

boolean correct = true;

while(correct)

{

System.out.print("Database Management System Marks  : ");

int DBMS=sc.nextInt();

boolean DBMS\_Mark = DBMS>0 && DBMS<100;

if(DBMS\_Mark)

{

Student\_Details[a][3] = Integer.toString(DBMS);

correct = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks."+"\n");

System.out.println();

correct = true;

}

}

}

}

isCorrect = IdUnique;

}

System.out.print("\nStudent has been added successfully.");

System.out.print("\tDo you want to add a new student  (y/n) : ");

answor=sc.next();

clearConsole();

}

return Student\_Details;

}

public static void AddStudentNew()

{

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

System.out.println("\t"+"|"+"\t\t  ADD NEW STUDENT WITH MARK\t\t\t"+"|");

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

}

public static String[][] AddMark(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="y";

while (find.equals("Y") || find.equals("y"))

{

AddMark();

boolean flag = true;

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

String ID = sc.next();

for(int x =0;x<Student\_Details.length;x++)

{

if(ID.equals(Student\_Details[x][0]))

{

System.out.print("Student name      : "+Student\_Details [x][1]+"\n");

while(flag)

{

System.out.print("\n"+"Programming Fundementals Marks    : ");

int PRF=sc.nextInt();

boolean Prf\_Mark = PRF>0 && PRF<100;

if(Prf\_Mark)

{

Student\_Details [x][2] = Integer.toString(PRF);

flag = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks.\n ");

flag = true;

}

}

boolean correct = true;

while(correct)

{

System.out.print("Database Management System Marks  : ");

int DBMS=sc.nextInt();

boolean DBMS\_Mark = DBMS>0 && DBMS<100;

if(DBMS\_Mark)

{

Student\_Details [x][3] = Integer.toString(DBMS);

correct = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks."+"\n");

System.out.println();

correct = true;

}

}

System.out.print("\n"+"marks have been added.  Do you Want to  add marks for another student?  (y/n) : ");

find=sc.next();

clearConsole();

}

}

if(flag)

{

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

find = sc.next();

clearConsole();

}

}

return Student\_Details;

}

public static void AddMark()

{

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

System.out.println("\t"+"|"+"\t\t\t  ADD  MARK\t\t\t    "+"|");

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

}

public static String[][] UpdateStudentDetails(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="y";

while (find.equals("Y") || find.equals("y"))

{

UpdateStudentDetails();

boolean flag = true;

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

String ID = sc.next();

for(int x =0;x<Student\_Details.length;x++)

{

if(ID.equals(Student\_Details[x][0]))

{

System.out.print("Student name : "+Student\_Details [x][1]+"\n");

while(flag)

{

System.out.print("\n"+"Enter the new student name    : ");

String Name =sc.next();

  for(int a =0;a<Student\_Details.length;a++)

  {

Student\_Details [x][1]=Name;

flag = false;

}

}

System.out.print("\nStudent details has been  update successfully. ");

System.out.print("\n"+"Do you Want to update another student details ?  (y/n) : ");

find=sc.next();

clearConsole();

}

}

if(flag)

{

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

find = sc.next();

clearConsole();

}

}

return Student\_Details;

}

public static void UpdateStudentDetails()

{

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

System.out.println("\t"+"|"+"\t\t\tUPDATE STUDENT DETAILS\t\t\t    "+"|");

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

}

public static String[][] UpdateMarks(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="y";

while (find.equals("Y") || find.equals("y"))

{

UpdateMarks();

boolean flag = true;

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

String ID = sc.next();

for(int x =0;x<Student\_Details.length;x++)

{

if(ID.equals(Student\_Details[x][0]))

{

System.out.print("Student name    : "+Student\_Details [x][1]+"\n");

System.out.print("\nProgramming Fundementals Marks : "+Student\_Details [x][2]);

System.out.print("\nDatabase Management System Marks : "+Student\_Details [x][3]+"\n");

while(flag)

{

System.out.print("\n"+"Enter new Programming Fundementals Marks    : ");

int PRF=sc.nextInt();

boolean Prf\_Mark = PRF>0 && PRF<100;

if(Prf\_Mark)

{

Student\_Details [x][2] = Integer.toString(PRF);

flag = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks.\n ");

flag = true;

}

}

boolean correct = true;

while(correct)

{

System.out.print("Enter new Database Management System Marks  : ");

int DBMS=sc.nextInt();

boolean DBMS\_Mark = DBMS>0 && DBMS<100;

if(DBMS\_Mark)

{

Student\_Details [x][3] = Integer.toString(DBMS);

correct = false;

}

else

{

System.out.print("Invalid Marks. Please Enter Correct marks."+"\n");

System.out.println();

correct = true;

}

}

System.out.print("\n"+"Marks have been update successfully.  \nDo you Want to update marks for another student?  (y/n) : ");

find=sc.next();

clearConsole();

}

}

if(flag)

{

System.out.print("\n"+"This student's marks yet to be added. \nDo you want to update the marks of another student? (y/n)  : ");

find = sc.next();

clearConsole();

}

}

return Student\_Details;

}

public static void UpdateMarks()

{

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

System.out.println("\t"+"|"+"\t\t  UPDATE MARKS\t\t\t"+"|");

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

}

public static String[][] DeleteStudent(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details=Student;

String search = "y";

while(search.equals("Y") || search.equals("y"))

{

DeleteStudent();

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

String ID = sc.next();

int index = 0;

boolean isCorrect = true;

for(int i=0; i<Student\_Details.length; i++)

{

if(ID.equals(Student\_Details [i] [0]))

{

index = i;

isCorrect = false;

String [] [] temp= new String [Student\_Details.length-1] [10];

for(int x=0; x<Student\_Details.length; x++)

{

if(x!=index)

{

for(int a=0; a<10; a++)

{

for(int d=0; d<temp.length; d++)

{

temp [d] [a] = Student\_Details [x] [a];

}

}

}

}

Student\_Details=temp;

System.out.print("\n"+"Student has been deleted successfully."+"\n"+"Do you want to delete another student? (y/n) : ");

search = sc.next();

clearConsole();

}

}

if(isCorrect)

{

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

search = sc.next();

clearConsole();

        }

}

return Student\_Details;

}

public static void  DeleteStudent()

{

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

System.out.println("\t"+"|"+"\t\t\tDELETE  STUDENT\t\t\t    "+"|");

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

}

public static String[][] PrintStudentDetails(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="y";

while (find.equals("Y") || find.equals("y"))

{

PrintStudentDetails();

boolean flag = true;

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

String ID = sc.next();

for(int x =0;x<Student\_Details.length;x++)

{

if(ID.equals(Student\_Details[x][0]))

{

int prf = Integer.parseInt(Student\_Details [x][2]);

int dbms =  Integer.parseInt(Student\_Details [x][3]);

int[][] Total = new int[Student\_Details.length+1][10];

for(int i =0;i<Student\_Details.length;i++)

{

Total[i][4] = prf + dbms;

Student\_Details[x][4] = String.valueOf(Total[i][4]);

}

double[][] Avg = new double[Student\_Details.length+1][10];

for(int i =0;i<Student\_Details.length;i++)

{

Avg[i][5] = Total[i][4] / 2;

Student\_Details[x][5] = String.valueOf(Avg[i][5]);

}

String[][] rank  = new String[Student\_Details.length+1][10];

for(int i =0;i<Student\_Details.length;i++)

{

if(Total[i][4] >=300 || Total[i][4] >=190)

{

rank[i][6] = "1 (First)";

}

else if(Total[i][4] >=180)

{

rank[i][6] = "1";

}

else if(Total[i][4] >=160)

{

rank[i][6] = "1";

}

else if(Total[i][4] >=140)

{

rank[i][6] = "2";

}

else if(Total[i][4] >=120)

{

rank[i][6] = "2";

}

else if(Total[i][4] >=100)

{

rank[i][6] = "2";

}

else if(Total[i][4] <=100)

{

rank[i][6] = "0";

}

Student\_Details[x][6] = rank[i][6];

}

for(int i=0;i<Student\_Details.length;i++)

{

System.out.print("Student name      : "+Student\_Details [x][1]+"\n");

System.out.println();

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

System.out.print("\n|Programming Fundementals Marks\t\t|"+"\t\t"+ Student\_Details [x][2]+"  |");

System.out.print("\n|Database Management System Marks\t|"+"\t\t"+ Student\_Details [x][3]+"  |");

System.out.print("\n|Total Marks\t\t\t\t|"+"\t       "+Student\_Details[x][4]+"  |");

System.out.print("\n|Avarege Marks\t\t\t\t|"+"\t      "+Student\_Details[x][5]+"  |");

if(Total[i][4] >=300 || Total[i][4] >=190)

{

System.out.print("\n|Rank\t\t\t\t\t|"+"\t  "+Student\_Details[x][6]+" |");

}

else

{

System.out.print("\n|Rank\t\t\t\t\t|"+"\t         "+Student\_Details[x][6]+"  |");

}

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

break;

}

System.out.print("\n"+"Do you Want to  search another student details?  (y/n) : ");

find=sc.next();

flag= false;

clearConsole();

}

}

if(flag)

{

System.out.print("\n"+"Marks yet to be added.\nDo you want to search again? (y/n)  : ");

find = sc.next();

clearConsole();

}

}

return Student\_Details;

}

public static void PrintStudentDetails()

{

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

System.out.println("\t"+"|"+"\t\t\tPRINT STUDENT DETAILS\t\t\t"+"|");

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

System.out.println();

}

public static String[][] PrintStudentRanks(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="y";

while (find.equals("Y") || find.equals("y"))

{

PrintStudentRanks();

System.out.println();

for(int y =0;y<Student\_Details.length;y++)

{

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

System.out.print("\n|Rank"+"\t|");

System.out.print("ID"+"\t|");

System.out.print("Name"+"\t\t|");

System.out.print("Total\t   Marks"+"|");

System.out.print("Avg      Marks"+"|");

System.out.println();

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

break;

}

for(int x=0;x<Student\_Details.length;x++)

{

if(Student\_Details[x][0]!=(null))

{

for(int i =0;i<10;i++)

{

System.out.print("|"+Student\_Details[x][6]+"\t"+"|");

System.out.print(Student\_Details[x][0]+"\t"+"|");

System.out.print(Student\_Details[x][1]+"\t\t"+"|");

System.out.print("\t    "+Student\_Details[x][4]+" |");

System.out.print("\t "+Student\_Details[x][5]+"  |");

break;

}

}

System.out.println();

}

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

System.out.println();

System.out.print("\n"+"Do you Want to  search another student details?  (y/n) : ");

find=sc.next();

clearConsole();

}

return Student\_Details;

}

public static void PrintStudentRanks()

{

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

System.out.println("\t"+"|"+"\t\t\tPRINT STUDENT'S RANKS\t\t\t"+"|");

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

System.out.println();

}

public static String[][] BestinProgrammingFundamentals(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="n";

while (find.equals("N") || find.equals("n"))

{

BestinProgrammingFundamentals();

System.out.println();

for(int y =0;y<Student\_Details.length;y++)

{

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

System.out.print("\n|ID"+"\t|");

System.out.print("Name"+"\t\t\t|");

System.out.print("PRF\t   Marks"+"|");

System.out.print("DBMS      Marks"+"|");

System.out.println();

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

break;

}

    for(int x=0;x<Student\_Details.length;x++)

{

if(Student\_Details[x][0]!=(null))

{

int[] matrix2 = new int[Student\_Details.length+1];

for(int i=0;i<Student\_Details.length;i++)

{

for(int j =0;j<Student\_Details.length;j++)

{

try {

matrix2[i] = Integer.parseInt(Student\_Details[i][2]);

}

catch (NumberFormatException e)

{

}

}

}

for(int i=1;i<Student\_Details.length;i++)

{

for(int j =i+1;j<Student\_Details.length;j++)

{

if(matrix2[i] < matrix2[j])

{

int temp = matrix2[i];

matrix2[i] = matrix2[j];

matrix2[j] = temp;

}

}

try

{

Student\_Details[i][2] = String.valueOf(matrix2[i]);

}

catch (NumberFormatException e)

{

}

}

for(int i =0;i<10;i++)

{

System.out.print("|"+Student\_Details[x][0]+"\t"+"|");

System.out.print(Student\_Details[x][1]+"\t             "+"   |");

System.out.print("\t    "+Student\_Details[x][2]+"  |");

System.out.print("\t    "+Student\_Details[x][3]+"  |");

break;

}

}

System.out.println();

}

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

System.out.print("\n"+"Do you Want to  go back main menu ?  (y/n) : ");

find=sc.next();

clearConsole();

}

return Student\_Details;

}

public static void BestinProgrammingFundamentals()

{

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

System.out.println("\t"+"|"+"\t\t BEST IN  PROGRAMMING FUNDAMENTALS \t\t"+"|");

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

System.out.println();

}

public static  String[][] BestinDatabaseManagementSystem(String[][] Student)

{

Scanner sc = new Scanner (System.in);

String[][] Student\_Details =Student;

String find ="n";

while (find.equals("N") || find.equals("n"))

{

BestinDatabaseManagementSystem();

System.out.println();

for(int y =0;y<Student\_Details.length;y++)

{

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

System.out.print("\n|ID"+"\t|");

System.out.print("Name"+"\t\t\t|");

System.out.print("DBMS      Marks"+"|");

System.out.print("PRF\t   Marks"+"|");

System.out.println();

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

break;

}

    for(int x=0;x<Student\_Details.length;x++)

{

if(Student\_Details[x][0]!=(null))

{

int[] matrix2 = new int[Student\_Details.length+1];

for(int i=0;i<Student\_Details.length;i++)

{

for(int j =0;j<Student\_Details.length;j++)

{

try {

matrix2[i] = Integer.parseInt(Student\_Details[i][3]);

}

catch (NumberFormatException e)

{

}

}

}

for(int i=1;i<Student\_Details.length;i++)

{

for(int j =i+1;j<Student\_Details.length;j++)

{

if(matrix2[i] < matrix2[j])

{

int temp = matrix2[i];

matrix2[i] = matrix2[j];

matrix2[j] = temp;

}

}

try

{

Student\_Details[i][3] = String.valueOf(matrix2[i]);

}

catch (NumberFormatException e)

{

}

}

for(int i =0;i<10;i++)

{

System.out.print("|"+Student\_Details[x][0]+"\t"+"|");

System.out.print(Student\_Details[x][1]+"\t             "+"   |");

System.out.print("\t    "+Student\_Details[x][3]+"  |");

System.out.print("\t    "+Student\_Details[x][2]+"  |");

break;

}

}

System.out.println();

}

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

System.out.println();

System.out.print("\n"+"Do you Want to  go back main menu ?  (y/n) : ");

find=sc.next();

clearConsole();

}

return Student\_Details;

}

public static void BestinDatabaseManagementSystem()

{

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

System.out.println("\t"+"|"+"\t\t BEST IN  DATABASE MANAGEMENT SYSTEM \t\t     "+"|");

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

System.out.println();

}

static boolean  IdUnique (String[][] StArray,String ID)

  {

boolean isCorrect =true;

for (int k=0; k<StArray.length; k++)

{

if(ID.equals(StArray[k][0]))

{

isCorrect=true;

break;

}

else

{

isCorrect=false;

}

}

return isCorrect;

  }

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();

}

        }

}