**Batch: B2 Roll No.: 1611103**

**Experiment / assignment / tutorial No. 02**

**Grade: AA / AB / BB / BC / CC / CD /DD**

**Signature of the Staff In-charge with date**

|  |
| --- |
| **TITLE :Multi-dimensional Arrays** |

**AIM :** Write a program which stores information about n players in a two dimensional array. The array should contain number of rows equal to number of players. Each row will have number of columns equal to number of matches played by that player which may vary from player to player. The program should display player number (index +1), runs scored in all matches and its batting average as output. (It is expected to assign columns to each row dynamically after getting value from user.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected OUTCOME of Experiment:**

**CO2:**Solve problems using Java basic constructs (like if else statement, control structures, and data types, array, string, vectors, packages, collection class).

**Books/ Journals/ Websites referred:**

1. Ralph Bravaco , Shai Simoson , “Java Programing From the Group Up” Tata McGraw-Hill.

2.Grady Booch, Object Oriented Analysis and Design .

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Pre Lab/ Prior Concepts:**

Arrays

**Multi-Dimensional Array**:

10 12 43 11 22

20 45 56 1 33

30 67 32 14 44

40 12 87 14 55

50 86 66 13 66

60 53 44 12 11

A multi dimensional array is one that can hold all the values above. You set them up like this:

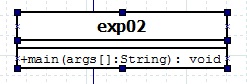
**int[ ][ ] numbers = new int[**6**][**5**];**

The first set of square brackets is for the rows and the second set of square brackets is for the columns. In the above line of code, we're telling Java to set up an array with 6 rows and 5 columns.

aryNumbers[0][0] = 10;  
aryNumbers[0][1] = 12;  
aryNumbers[0][2] = 43;  
aryNumbers[0][3] = 11;  
aryNumbers[0][4] = 22;

So the first row is row 0. The columns then go from 0 to 4, which is 5 items.

**Class Diagram:**



**Implementation details:**

**import java.util.Scanner;**

**class exp02**

**{**

**public static void main(String args[])**

**{**

**int n,m;**

**Scanner in = new Scanner(System.in);**

**System.out.print("Enter the no. of players : ");**

**n = in.nextInt();**

**int p[][] = new int[n][];**

**float avg[] = new float[n];**

**for(int i = 0 ; i < n ; i++)**

**{**

**System.out.print("Enter the no. of matches played by Player " + (i+1) + " : ");**

**m = in.nextInt();**

**p[i] = new int[m+1];**

**}**

**for(int i = 0 ; i < n ; i++)**

**{**

**System.out.println("Enter the runs scored by player " + (i+1)+ " in");**

**int sum =0;int j = 0;**

**for(; j < (p[i].length - 1); j++)**

**{**

**System.out.print("Match " + (j+1) + " :");**

**p[i][j] = in.nextInt();**

**sum+=p[i][j];**

**}**

**avg[i] = ((float)sum)/j;**

**p[i][j] = sum;**

**}**

**for(int i = 0;i<n;i++)**

**{**

**System.out.println("Runs scored by player " + (i+1) + " :");**

**int j = 0;**

**for(;j < (p[i].length -1) ; j++)**

**{**

**System.out.print(p[i][j] + " ");**

**}**

**System.out.print("\nSum = " + (p[i][j]) + " Average = " + avg[i] +"\n");**

**}**

**System.out.println("Thank You,!!");**

**}**

**}**

**/\***

**Enter the no. of players : 3**

**Enter the no. of matches played by Player 1 : 4**

**Enter the no. of matches played by Player 2 : 3**

**Enter the no. of matches played by Player 3 : 5**

**Enter the runs scored by player 1 in**

**Match 1 :34**

**Match 2 :43**

**Match 3 :54**

**Match 4 :61**

**Enter the runs scored by player 2 in**

**Match 1 :52**

**Match 2 :56**

**Match 3 :21**

**Enter the runs scored by player 3 in**

**Match 1 :158**

**Match 2 :0**

**Match 3 :10**

**Match 4 :1**

**Match 5 :5**

**Runs scored by player 1 :**

**34 43 54 61**

**Sum = 192 Average = 48.0**

**Runs scored by player 2 :**

**52 56 21**

**Sum = 129 Average = 43.0**

**Runs scored by player 3 :**

**158 0 10 1 5**

**Sum = 174 Average = 34.8**

**Thank You,!!**

**\*/**

**Conclusion:**

Hence the use and creation of dynamic arrays was studied and they were implemented successfully.

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Signature of faculty in-charge**

**Post Lab Descriptive Questions (Add questions from examination point view)**

**Q.1 Which of the following statements are valid array declaration?**

(A) int number();

(B) float average[];

(C) double[] marks;

(D) counter int[];

(i) (D)

(ii) (A) & (C)

(iii) (A)

(iv) (B)&(C)

**(iv). B & C**

**Q.2 Consider the following code**

int number[] = new int[5];

After execution of this statement, which of the following are true?

(A) number[0] is undefined

(B) number[5] is undefined

(C) number[4] is null

(D) number[2] is 0

(E) number.length() is 5

(i) (C) & (E)

(ii) (A) & (E)

(iii) (E)

(iv) (B), (D) & (E)

**(iv). B, D & E.**

**Q.3 What will be the content of array variable table after executing the following code?**

for(int i = 0; i < 3; i + +)

for(int j = 0; j < 3; j + +)

if(j = i) table[i][j] = 1;

else table[i][j] = 0;

A). 0 0 0

0 0 0

0 0 0

B). 0 0 1

0 1 0

1 0 0

C). 1 0 0

1 1 0

1 1 1

D) 1 0 0

0 1 0

0 0 1

**(D)**