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question

A chocolate manufacturing company has three machines to produce chocolate balls. 5 chocolate balls from each machine were taken to check the average size of the chocolate balls produce from each machine.

Write a C program to do the following.

1. Declare an array called **size** with 3 rows and 5 columns.
2. Input the size of the chocolate balls from the key board and store the sizes in the array called **size**. Assume that each row in the array represent the size of chocolate balls from one machine.

22	22.5	22.3	22.1	21.9
22.6	22.5	22.4	22.2	22.5
22.3	22.1	22.3	22.3	22.4

3. Find the average size of balls of each machine and store the result in another array called **avgSize**.
4. Display the average size of each machine.

Marking Guide

Declaring arrays correctly - 0.5 mark
Taking keyboard inputs and store in the array- 2 marks
Array Manipulation - 4 marks
Display the output - 2 marks
Coding standards - 0.5 mark
Correct compilation of program - 0.5 mark
Correct execution of the program - 0.5 mark

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A researcher wants to record the rainfall of 4 cities in Sri Lanka for 3 days. He uses a 2D array for this purpose. Sample of a rainfall array is given below.

48	110	98	89
56	67	78	62
49	59	34	68

Write a C program to do the following.

1. Declare a 2D array called **rainfall** with 3 rows and 4 columns.
2. Input the rainfall of 4 cities in Sri Lanka for 3 days and store in the array.
3. Find the maximum rainfall of each day and store those in another array **maxRainfall**.
4. Display the maximum rainfall of each day.

Marking Guide

Declaring arrays correctly - 0.5 mark

Taking keyboard inputs and store in the array- 2 marks

Array Manipulation - 4 marks

Display the output - 2 marks

Coding standards - 0.5 mark

Correct compilation of program - 0.5 mark

Correct execution of the program - 0.5 mark

Sri Lanka Institute of Information Technology

Examinations

Lockdown Browser

Practice Test

A shipping company uses a 2D array to record the length, width and height of the boxes of 4 boxes in an array call **boxes**.

2	2	2
2	4	4
3	4	4
5	5	3

Write a C program to do the following.

1. Declare an array called **boxes** with 4 rows and 3 columns.
2. Input the length, width and height of 4 boxes and store in the array.
3. Calculate the volume of each box and store in another array called **volume**.
volume = length x height x width
4. Display the volume of each box.

Marking Guide

Declaring arrays correctly - 0.5 mark

Taking keyboard inputs and store in the array- 2 marks

Array Manipulation - 4 marks

Display the output - 2 marks

Coding standards - 0.5 mark

Correct compilation of program - 0.5 mark

Correct execution of the program - 0.5 mark

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An exam consists of 2 components and 5 students participate for the exam. The marks of both components (out of 100) of all the students are stored in an integer 2D array called **marks**. Each row in the array represents component 1 and component 2 marks of a student. A sample of **marks** array is given below.

30	54
46	55
89	85
90	78
64	73

Write a C program to do the following.

1. Declare an array called **marks** with 5 rows and 2 columns.
2. Read the marks of 5 students and store the marks in the **marks** array.
3. Find the final mark of each student and store the result in another array called **finalMark**.

Final mark = component 1 * 40% + component2 * 60%

4. Display the final marks of each student.

Marking Guide

Declaring arrays correctly - 0.5 mark

Taking keyboard inputs and store in the array- 2 marks

Array Manipulation - 4 marks

Display the output - 2 marks

Coding standards - 0.5 mark

Correct compilation of program - 0.5 mark

Correct execution of the program - 0.5 mark

Write a C program to do the following.

1. Define a structure called **Book** to store the details of Books in a library. (Book ID, title, no of copies, number of readers)

e.g.:

B4500	Java	5	1278
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2. Declare an array of **Book** to store the details of 3 books.
 3. Input the details of books from the keyboard and store in the above array.
 4. Read the data from the array, find and display the most popular book.
- Most popular book is the book which has highest number of readers.

Sample Output

Name of the book:

Number of readers :

Marking Guide

- Defining the structure correctly - 2.0 marks
- Declaring arrays correctly - 2.0 mark
- Input data and store in the array - 1.0
- Access array elements - 1.0
- Correct Calculation - 1.5
- Correct Output - 1.0
- Coding standards - 0.5 mark
- Correct compilation of program - 0.5 mark
- Correct execution of the program - 0.5 mark

Write a C program to do the following.

1. Define a structure called **Employee** to store the employee details Employee ID, name, experience (in years) and salary.
e.g.:

E190	Niaml	2	35000.00
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2. Declare an array of **Employee** to store the details of 3 employees.
3. Input the details of employees from the keyboard and store in the above array.
4. Read the data from the array and display the Employee ID, name and increment.
10% from the salary is given as increment for the employees who has worked more than 2 years.

Sample output

<u>Employee ID</u>	<u>Name</u>	<u>Increment</u>
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Marking Guide

Defining the structure correctly - 2.0 marks

Declaring arrays correctly - 2.0 mark

Input data and store in the array - 1.0

Access array elements - 1.0

Correct Calculation - 1.5

Correct Output - 1.0

Coding standards - 0.5 mark

Correct compilation of program - 0.5 mark

Write a C program to enter 5 integers to an array from the keyboard. Assume that the numbers entered from the keyboard are positive values. Ask the user to enter a number from the keyboard and find whether the number is repeated in the array. Display message "Number repeated <no> times" , "Number not repeated" or "Number not found". Sample Output:

Enter values to the Array :

5

6

9

6

7

Enter the number : 6

Number repeated 2 times

Enter the number : 5

Number not repeated

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Write a C program to do the following.

1. Define a structure called **Product** to store the product details Product ID, name, unit price and quantity sold.
e.g.:

A298	Soap	65.00	40
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2. Declare an array of **Product** to store the details of 4 products.
3. Input the details of 4 products from the keyboard and store in the above array.
4. Read the data from the array and display the product ID, name and the amount received from selling each product.

Amount = unit price * quantity

5. Also total amount received from selling all the products.

Sample output

Product ID	Name	Amount
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Total :

Marking Guide

Defining the structure correctly - 2.0 marks

Declaring arrays correctly - 2.0 mark

Input data and store in the array - 1.0

Access array elements - 1.0

An exam consists of 2 components and 5 students participate for the exam. The marks of both components (out of 100) of all the students are stored in an integer 2D array called **marks**. Each row in the array represents component 1 and component 2 marks of a student. A sample of **marks** array is given below.

30	54
46	55
89	85
90	78
64	73

Write a C program to do the following.

1. Declare an array called **marks** with 5 rows and 2 columns.
2. Read the marks of 5 students and store the marks in the **marks** array.
3. Find the final mark of each student and store the result in another array called **finalMark**.

Final mark = component 1 * 40% + component2 * 60%

4. Display the final marks of each student.

Marking Guide

Declaring arrays correctly - 0.5 mark

Taking keyboard inputs and store in the array- 2 marks

Array Manipulation - 4 marks

Display the output - 2 marks

Coding standards - 0.5 mark

Correct compilation of program - 0.5 mark

Correct execution of the program - 0.5 mark

At the end of each day, the average temperature of each city is calculated and stored in another 1D array called `avgTemp`.

Write a C program to do the following.

1. Declare an array called `temp` with 2 rows and 3 columns.
2. Input the temperatures from the key board and store in the array.
3. Calculate the average temperature of each city and store the result in `avgTemp` array in the same order of cities.
4. Display the average temperatures of the cities.

example :

temp array			
	morning	noon	evening
Colombo	29.1	32.6	31.3
Kandy	27.8	30.2	28.4

avgTemp array	
Colombo	31.0
Kandy	28.8

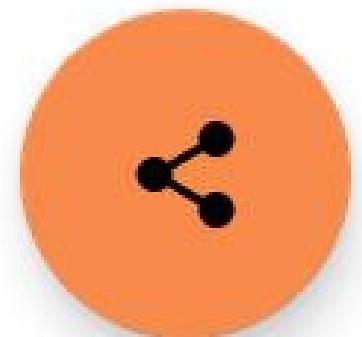
Marking Guide

Declaring arrays correctly - 0.5 mark

Taking keyboard inputs and store in the array- 2 marks

Array Manipulation - 4 marks

Display the output - 2 marks



An aptitude test of a particular university will take 10 applicants at a time. Those who scored more the average mark will be qualified to enter the university. Others have to take the test again. Write a C program to enter marks in an array and find the marks which will be qualified .

- a) Declare an integer array called **testMarks** of size 10.
- b) Initialize all the array elements to -1.
- c) Read the marks from the keyboard and store them in the array. If the user input a mark less than 0 or greater than 100, display an appropriate error message and ask to re-enter the mark.

Input format:

Input mark 1: 56

Input mark 2: 110

Invalid Mark. Re-enter

Input mark 2: 60

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Input mark 10: 45

- d) Display the marks which will be qualified.

Example :

Input array : 56 60 30 70 23 90 12 55 88 45

Output :

Passed marks : 56 60 70 90 55 88