1) **Aim:**

Write a C program to display the array using recursion.

**Input format:**

first input- array size

second input- read array elements

**Output format:**

Display the array elements in a line with single space separated.

**Input:**

4

2 8 1 4

**Output:**

2 8 1 4

**NOTE:**

1. The question has templates(i.e. partial code is available). You are expected to complete the code in the space provided.
2. Write your code between the start-editable and end-editable tags. You can only start typing after leaving one line beyond the start-editable tag.

CODE:

#include<stdio.h>

// function declaration

void numPrint(int B[],int k);

int main()

{

int n;

scanf("%d",&n);

int A[n];

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

{

scanf("%d",&A[i]);

}

numPrint(A,n); // function call

return 0;

}

//@start-editable@

void numPrint(int B[],int k)

{

if (k==0)

return;

else

{

numPrint(B,k-1);

printf("%d ",B[k-1]);

}

}

2) **Aim:**

Write a program in C to calculate the product of array eleemnts.

**Input format:**

first input- array size

second input- read array elements

**Output format:**

Display the product of array elements

**Input:**

4

1 5 2 3

**Output:**

30

**NOTE:**

1. The question has templates(i.e. partial code is available). You are expected to complete the code in the space provided.
2. Write your code between the start-editable and end-editable tags. You can only start typing after leaving one line beyond the start-editable tag.

CODE:

#include<stdio.h>

//@start-editable@

int product(int A[],int n)

{

static p=1;

if (n<=0)

return p;

else

{

p=product(A,n-1);

p=p\*A[n-1];

return p;

}

}

//@end-editable@

int main()

{

int n;

scanf("%d",&n);

int A[n];

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

{

scanf("%d",&A[i]);

}

int p=product(A,n); // function call

printf("%d",p);

return 0;

}

3) **SCENARIO**

Your department has decided to automate the process of mark analysis and has assigned the task of this automation to you. There are N students in your class and you have 6 different subjects. You have to get the input marks of each student for each of the 6 subjects and analyze them.

**TASK**

Your analysis involves writing a program in C to perform the following sub-tasks.

1. Display the average marks scored by the class for each subject
2. Display the average marks of each student across all subjects
3. Find out the class topper - This is the student with maximum average marks across all subjects.

**Input Format:**

The first line is the number of students in the class.

Each subsequent line contains six space separated integers that represent the marks scored in each subject.

The last line represents an integer input corresponding to each of the sub tasks.

**Output Format:**

Each line shows the corresponding expected result.

**Sample Input 1**

Copy

4

29 34 97 55 100 69

52 76 54 83 62 86

80 89 43 61 20 68

74 25 69 22 61 98

1

**Sample Output 1**

Copy

Avg for Subject 1 is 58.75

Avg for Subject 2 is 56.00

Avg for Subject 3 is 65.75

Avg for Subject 4 is 55.25

Avg for Subject 5 is 60.75

Avg for Subject 6 is 80.25

**Sample Input 2**

Copy

4

29 34 97 55 100 69

52 76 54 83 62 86

80 89 43 61 20 68

74 25 69 22 61 98

2

**Sample Output 2**

Copy

Average of student 1 is 64.00

Average of student 2 is 68.83

Average of student 3 is 60.17

Average of student 4 is 58.17

**Sample Input 3**

Copy

4

29 34 97 55 100 69

52 76 54 83 62 86

80 89 43 61 20 68

74 25 69 22 61 98

3

**Sample Output 3**

Copy

The Class Topper is : 2

CODE:

#include<stdio.h>

void avgsub(int a[6][6],int m,int n)

{

int i,j;

float sum;

for (j=0;j<n;j++)

{

sum=0;

for (i=0;i<m;i++)

{

sum=sum+a[i][j];

}

sum=sum/m;

printf("Avg for Subject %d is %.2f\n",j+1,sum);

}

}

void avgst(int a[6][6],int m,int n,int ch)

{

int i,j,max;

float b[m];

float sum;

for (i=0;i<m;i++)

{

sum=0;

for (j=0;j<n;j++)

{

sum=sum+a[i][j];

}

sum=sum/n;

b[i]=sum;

}

if (ch==2)

{

for (i=0;i<m;i++)

printf("Average of student %d is %.2f\n",i+1,b[i]);

}

else

{

max=0;

for (i=0;i<m;i++)

{

if (b[i]>b[max])

max=i;

}

printf("The Class Topper is : %d",max+1);

}

}

int main()

{

int m,ch,i,j;

float average;

scanf("%d",&m);

int a[m][6];

for (i=0;i<m;i++)

{

for (j=0;j<6;j++)

scanf("%d",&a[i][j]);

}

scanf("%d",&ch);

if (ch==1)

{

avgsub(a,m,6);

}

else if(ch==2||ch==3)

{

avgst(a,m,6,ch);

}

return 0;

}