LAB - 2

Q1 Wap to create an Dynamic Array and display elements.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
  int *ptr = NULL;
  int i, n = 0;
  printf("ENTER THE SIZE OF ARRAY: ");
  scanf("%d", &n);
  ptr = (int *)malloc(n * sizeof(int));
  printf("ENTER THE ELEMENTS: ");
  for (i = 0; i < n; ++i)
  {
    scanf("%d", &ptr[i]);
  }
  printf("~~~~~~ Array elements are ~~~~~ \n");
  for (i = 0; i < n; ++i)
  {
    printf("%d \t", ptr[i]);
  }
  return 0;
}
```

```
ENTER THE SIZE OF ARRAY: 5
ENTER THE ELEMENTS: 4
3
5
2
1
~~~~~~ Array elements are ~~~~~
4       3       5       2       1
```

Q2. Wap to allocate memory for 5 no and display it by using malloc.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
  int *ptr = NULL;
  int i, len = 5 ;
  ptr = (int *)malloc(len * sizeof(int));
  printf("ENTER THE ELEMENTS: ");
  for (i = 0; i < len; ++i)
  {
    scanf("%d", &ptr[i]);
  }
  printf("Elements stored using malloc: \n");
  for (i = 0; i < len; ++i)
  {
    printf("%d \t", ptr[i]);
```

```
    }
    return 0;
}
```

```
ENTER THE ELEMENTS: 5
2
3
1
4
Elements stored using malloc:
5       2       3       1       4
```

Q3. Wap to allocate 5 no and find greatest no by using calloc.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int n;
    double *data;
    printf("Enter the total number of elements: ");
    scanf("%d", &n);
    data = (double *)calloc(n, sizeof(double));
    if (data == NULL)
    {
        printf("Error!!! memory not allocated.");
    }
    for (int i = 0; i < n; ++i)
    {
        printf("Enter number%d: ", i + 1);
        scanf("%lf", data + i);
    }
    for (int i = 1; i < n; ++i)
    {
        if (*data < *(data + i))
        {
            *data = *(data + i);
        }
    }
    printf("Largest number = %.2lf", *data);
    return 0;
}
```

```
Enter the total number of elements: 5
Enter number1: 1
Enter number2: 3
Enter number3: 5
Enter number4: 2
Enter number5: 4
Largest number = 5.00
```

Q4. Wap to add two no in c++.

```
#include <iostream>
using namespace std;
int main()
{
```

```
    int firstNumber, secondNumber, sumOfTwoNumbers;

    cout << "Enter two integers: ";
    cin >> firstNumber >> secondNumber;
    // sum of two numbers in stored in variable sumOfTwoNumbers
    sumOfTwoNumbers = firstNumber + secondNumber;
    // Prints sum
    cout << firstNumber << " + " << secondNumber << " = " << sumOfTwoNumbers;
    return 0;
}
```

```
Enter two integers: 12 23
12 + 23 = 35
```

95. Wap to check no is armstrong or not of 3 digits no in C++.

```
#include <iostream>
using namespace std;
int main()
{
    int num, oNum, Rmndr, res = 0;
    cout << "Enter a three-digit integer: ";
    cin >> num;
    oNum = num;
    while (oNum != 0)
    {
        Rmndr = oNum % 10;
        res += Rmndr * Rmndr * Rmndr;
        oNum /= 10;
    }
    if (res == num)
        cout << num << " is an Armstrong number.";
    else
        cout << num << " is not an Armstrong number.";
    return 0;
}
```

```
PS C:\Users\KIIT\Documents\OOPS LAB> cd "c:\Users\KIIT\Documents\OOPS LAB\OOPS LAB
Enter a three-digit integer: 153
153 is an Armstrong number.
PS C:\Users\KIIT\Documents\OOPS LAB\OOPS LAB 2> cd "c:\Users\KIIT\Documents\OOPS L
Enter a three-digit integer: 135
135 is not an Armstrong number.
```

96. Wap to create student structure having roll, name, mark1, mark2, mark3 and display sum(), avg() using pointer to structure in C.

```
#include <stdio.h>
void main()
{
    struct student
    {
        int rollno;
        char name[20];
        int m1, m2, m3, total;
        float average;
```

```
    };
    struct student s[20], t;
    int i, j, n;
    printf("\n Enter the number of students: ");
    scanf("%d", &n);
    for (i = 0; i < n; i++)
    {
        printf("Enter the roll no: ");
        scanf("%d", &s[i].rollno);
        printf("\nEnter the name: ");
        scanf("%s", s[i].name);
        printf("\nEnter the marks 1:");
        scanf("%d", &s[i].m1);
        printf("\nEnter the marks 2: ");
        scanf("%d", &s[i].m2);
        printf("\nEnter the marks 3: \n");
        scanf("%d", &s[i].m3);
        s[i].average = (s[i].m1 + s[i].m2 + s[i].m3) / 3;
    }
    for (i = 0; i < n - 1; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (s[i].average < s[j].average)
            {
                t = s[i];
                s[i] = s[j];
                s[j] = t;
            }
        }
    }
    printf("\n-----------------------------------------\n");
    for (i = 0; i < n; i++)
    {
        printf("\n-----------------------------------------\n");
        printf("\n rollno = %d", s[i].rollno);
        printf("\n name = %s", s[i].name);
        printf("\n mark1 = %d", s[i].m1);
        printf("\n mark2 = %d", s[i].m2);
        printf("\n mark3 = %d", s[i].m3);
        printf("\n average = %.2lf", s[i].average);
        printf("\n Total = %d", s[i].m1 +s[i].m2 +s[i].m3);
    }
}
```

```
 Enter the number of students: 2
Enter the roll no: 1

Enter the name: Anupam

Enter the marks 1:50

Enter the marks 2: 49

Enter the marks 3:
48
Enter the roll no: 2

Enter the name: 2

Enter the marks 1:45

Enter the marks 2: 46

Enter the marks 3:
47

-----------------------------------------------


-----------------------------------------------

 rollno = 1
 name = Anupam
 mark1 = 50
 mark2 = 49
 mark3 = 48
 average = 49.00
 Total = 147
-----------------------------------------------

 rollno = 2
 name = 2
 mark1 = 45
 mark2 = 46
 mark3 = 47
 average = 46.00
 Total = 138
```

Q7. Wap to create Emp structure having empno, ename, esal. Use input() to take input and display function for display it.

```
#include <stdio.h>
typedef struct
{
   char ename[30];
   int empno;
   int esal;
} Employee;
int main()
{
   int i, n = 2;
   Employee emp[n];
   printf("Enter %d Employee Details \n \n", n);
   for (i = 0; i < n; i++)
   {
      printf("Employee %d:- \n", i + 1);
      printf("Name: ");
      gets(emp[i].ename);
      printf("Id: ");
      scanf("%d", &emp[i].empno);
      printf("Salary: ");
      scanf("%d", &emp[i].esal);
      printf("\n");
```

```
        fflush(stdin);
    }
    printf("---------- All Employees Details ----------\n");
    for (i = 0; i < n; i++)
    {
        printf("Name \t: ");
        printf("%s \n", emp[i].ename);
        printf("Id \t: ");
        printf("%d \n", emp[i].empno);
        printf("Salary \t: ");
        printf("%d \n", emp[i].esal);
        printf("\n");
    }
    return 0;
}
```

```
Enter 2 Employee Details

Employee 1:-
Name: Anupam
Id: 1
Salary: 10000

Employee 2:-
Name: Moharana
Id: 2
Salary: 15000

---------- All Employees Details ----------
Name    : Anupam
Id      : 1
Salary  : 10000

Name    : Moharana
Id      : 2
Salary  : 15000
```