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ME-3 Based on Arrays & function.

01. Create a program to generate following output:
Given Array: 10, 20, 3, 77, 80
80, 77, 3, 20, 10
Sum of Array is: 190

⇒ Code:

```
#include <iostream.h>
#include<conio.h>
int main()
{
   int a[5], sum=0;
   clrscr();

   cout<<" enter the five no. \n";
   for (int i=0; i<5; i++)
    cin>> a[i];
   cout<<"input array is \n";
   for (i=0; i<5; i++)
   {
    cout<<a[i]<<endl;
    sum = sum+ a[i];
   }
   cout<<" Sum of array element"<< sum;
    getch();
   return 0;
}
```

S1

OUTPUT

Enter the five no.

10
20
3
77
80

Input array is
10
20
3
77
80

Sum of array element 190

Q2. Create a program to generate following output:
Given Array: 10, 20, 30, 40, 50
Odd, Even, Odd, Even, Odd.

Code:-

```
# include <iostream.h>
# include <conio.h>
int main()
{
 int arr[] = {10,20, 30, 40,50}
 clrscr();
 cout<<" even number is:" <<endl;
 for (int i=0; i<5; i++)
 {
  if (arr[i]%2 ==0)
  {
  cout<<arr[i] <<endl;
  }
  else
  {
  cout<<" odd number is: "<<endl;
  cout << arr[i]<<" " <<endl;
  }
  getch();
  return 0;
 }
```

Q2

OUTPUT :-

```
Even no is
 10
 20
 30
  40
Odd number is
    55
```

Q3. Generate a program in switch Case.

Case 1:- Transpose of matrix

```
# include <iostream.h>
# include <conio.h>
  int main()
  {
   int n[3][3], transpose[3][3], i,j;
   Cout << "Enter matrix elements" << endl;
   For (i=0; i<3; i++)
   {
     for (j=0; j<3; j++)
     {
      Cout << "Enter number is Pucket" << i << j;
      cin >> n[i][j];
     }
   }
   Cout << "matrix is ....." << endl;
    For (i=0; i<3; i++)
   {
     for (i=0; i<3; i++)
   {
     For (j=0; j<3; j++)
   {
    cout << n[i][j] << " ";
   }
   cout << endl;
  }
   getch();
   return 0;
  }
```

Output

Q3.

Case-1 :-

```
enter matrix elements

enter number is pocket 001
enter number is pocket 012
enter number is pocket 023
enter number is pocket 104
enter number is pocket 115
enter number is pocket 126
enter number is pocket 207
enter number is pocket 218
enter number is pocket 229
 matrix is ------
 1   2   3
 4   5   6
 7   8   9
```

case:-2 :- Multiplication of matrices.

Code :-

```
# include < iostream.h>
# include < conio.h>
  int main()
 {
   int Product[10][10], r1=3, c1=3, r2=3, c2=3, i, j, k;
   int a[3][3] = {(2,4,1),(2,3,9),(3,1,8)};
   int b[3][3] = {(1,2,3),(3,6,1),(2,4,7)};
   if (c1 != r2)
  {
    cout<<"column of first matrix should be equal to
                    row of second matrix.";
  }
    else
   {
   cout<<"The first matrix is: "<<endl;
   for (i=0; i<r1; ++i)
  {
    for (j=0; j<c1; ++j)
    cout<<a[i][j]<<"  ";
    cout<<endl;
  }
    cout<<endl;
   Cout<<"the second matrix is: "<<endl;
   for(i=0; i<r2; ++i)
  {
    For(j=0; j<c2; ++j)
   cout<<b[i][j]<<"  ";
   cout<<endl;
  {
```

```
cout <<endl;
for ( i=0; i<r1; ++i)
for (j=0; j<c2; ++j)
{
  product[i][j] = 0;
}
 for ( i=0; i<r1; ++i)
 for (j=0; j<c2; ++j)
 for ( k=0; k< c1; ++k)
{
 product[i][j] + = a[i][k] * b[k][j];
}
 cout<<" product of the two matrices is: "<<endl;
 for (i=0; i<r1; ++i)
{
  for (j=0; j<c2; ++j)
  cout << product[i][j] <<"  ";
  cout<<endl;
}
}
 getch();
 return 0;
}
```

Q3.

OUTPUT

The first matrix is:

2 4 1
2 3 9
3 1 8

The second matrix is:

1 2 3
3 6 1
2 4 7

Product of the two matrices is:

16 32 17
29 58 72
22 44 66

Q4. create a function to find GCD.

Code :-

```
#include<iostream.h>
#include<conio.h>
int hcf(int n1, int n2);
int main()
{
    int n1,n2;
    clrscr();
    cout<<"enter two positive integers: ";
    cin>>n1>>n2;
    cout<<"H.C.F of "<<n1<<"&"<<n2<<"is:"<<hcf(n1,n2);
    getch();
    return 0;
}
int hcf(int n1, int n2)
{
    if(n2!=0)
    return hcf(n2,n1%n2);
    else
    return n1;
}
```

Q4. OUTPUT:-

Enter two positive integers: 12
8

H.C.F of 12 & 8 is: 4

Q5. Create a function to find factorial of a number.

Code :-

```
# include < iostream.h >
# include < conio.h >
  int main()
  {
     int i, fact = 1, n;
     clrscr();
     Cout << " enter any number ";
     Cin >> n;
     for ( i=1; i<=n; i++)
      {
         fact = fact * i;
      }
      Cout << " Factorial of " << n << " is " << fact << endl;
      getch();
      return 0;
  }
```

Q5.

OUTPUT

Enter any number: 5

factorial of 5 is 120

Q6. Create a function insert() and delete() in array using switch case.

Hint: Case 1:

```
# include < iostream.h>
# include < conio.h>
  int insert()
  {
   int i,j,k,m,a[10] = {1,2,3,4,5,6}, n;
   cout<<"Enter Size of array: ";
   cin>>n;
    For (i=0;i<=n; i++)
    {
      cout<< a[i];
    }
   Cout<<endl;
   cout<<" Enter element in array: ";
   cin>>m;
   Cout<<" Enter Position of element in array to insert:";
    cin>> j;
    For( j=n; i> = j ; i--)
    {
     a[i+1] = a[i];
      a[j] = m;
       n=n+1;
    Cout<<" modified array: ";
    for (i=0; i<=n; i++)
    {
     Cout<<a[i];
    } getch();
    return 0;
  }
```

Case 2:
delete()

Code:-

```
a[j] =m;
 n=n+1;
cout<<" modified array: ";
 for (i=0; i<=n; i++)
 {
  cout<< a[i];
 }
  return 0;
{
  int delet()
 {
  int i,j,k,m, a[10]={1,2,3,4,5,6}, n;
  cout<<" enter size of array: ";
   cin>>n;
   cout<<" Array: ";
  for( i=0; i<=n; i++)
 {
  cout<<a[i];
 }
  cout<< endl;
  cout<<"enter position of element in array to delete";
   cin>>j;
  For (i=j; i<=n; i++)
 {
   a[i] =a[i+1];
 }
  n=n-1;
 cout<<" modified array: ";
```

```
For (i=0; i<=n; i++)
{
 Cout << a[i];
{
 return 0;
{
  int main()
  {
   int k;
   Cout << " press 1 for array insection or "
   Cout << " Press 2 for array deletion: " << endl;
    Cin >> k;
    Switch(k);
  }
 Case 1:
    insert();
    break;
  Case 2:
  delete();
   break;
 }
}
```

Q6 OUTPUT

```
Press 1 for array insertion or press 2 For
   array deletion !!
1
Enter size of array: 5
Array: 1 2 3 4 5 6
Enter element in array: 10
Enter position of Element in array to insert: 2
modified array: 12103456

Press 1 for array insection or press 2 for
   array deletion: 2
Enter size of array: 4
Array: 1 2 3 4 5
Enter position of Element in array to delete: 3
modified array: 1 2 3 5
```

87. WAP of function overloading to calculate area and circumference of circle.

Code :-

```
#include<iostream.h>
#include<conio.h>
 float area(float);
 float circum(float);
 int main()
 {
   int radius;
   clrscr();
   cout<<"\n enter radius of circle";
   cin>>radius;
   cout<<"\n area of circle"<<area(radius);
   cout<<"\n circumference of circle"<<circum(radius);
    getch();
    return 0;
  }
   float area(float radius)
    {
    return(3.14*radius*radius);
    }
    float circum(float radius)
    {
    return(2*3.14*radius);
    }
```

87.

OUTPUT

Enter radius of circle: 6

area of circle: 113.04
Circumference of circle: 37.68