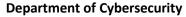
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Al- Mustagbal University

College of Sciences







كلية العلوم قسم الأمن السيبراني

Lecture: 4

The function

Subject: Structured Programming

First Stage

Lecturer: Asst. Prof. Dr. Ali Kadhum Al-Quraby

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Ex 6:

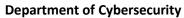
```
Write a C++ program do swap between two integer numbers.
 #include <iostream.h>
// Function prototype (declaration)
void swap(int,int);
void main()
    int a,b;
    cout << "Enter value of a.";
    cin>>a;
    cout << "Enter value of b:";
    cin>>b;
    cout<<"Before swapping";</pre>
    cout << endl;
    cout << "a =" << a << end1;
    cout << "b=" << b;
    // Function call
    swap(a,b);
 }
// Function definition
void swap(int a1,int b1)
    b1 = a1 + b1;
    a1 = b1 - a1;
    b1 = b1 - a1;
    cout<<endl;
    cout<<"After swapping";</pre>
    cout < < endl;
```

Output

Enter value of a:40 Enter value of b:3 Before swapping a = 40

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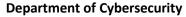






```
cout << "a = " << a1 << endl;
   cout << "b = " << b1;
}
Ex 7:
- Write a C++ program to print the square of numbers.
   #include<iostream.h>
   #include<conio.h>
   // Function prototype (declaration)
   void square (int);
   void main ()
   {
                                                             Output
          int max;
                                                   Enter the value for number:4
          cout<<"Enter a value for number:";</pre>
                                                   The square for 1 is:1
          cin>>max;
                                                   The square for 2 is:4
          cout << "\n";
          for (int i=1; i \le max; ++i)
                 // Function call
                 square (i);
```







```
getch();
   // Function definition
   void square(int n)
         int value;
         value=n*n;
         cout<<"The square for "<<n<<" is:"<<value<<endl;
   }
Ex 8:
- Write a C++ program to check whether the number is odd or even.
   #include <iostream>
   // Function prototype (declaration)
                                                Output
   void odd_even(int n);
                                               Enter Value: 11
   int main()
         int number;
         cout << "Enter Value: ";
         cin >> number;
         // Function call
         odd_even(number);
```



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```
return (0);
  // Function definition
  void odd_even(int n)
         if (n\%2==0)
               cout << n << " is Even";
         else
               cout \leq n \leq " is Odd";
Ex 9.
   - Write a C++ program to display the adding of two integers using function.
  #include<iostream>
  #include<conio.h>
  // Function prototype (declaration)
  void add_two_numbers (int, int);
                                                        Output
                                                  Enter the first number:
  int main ()
                                                  10
```

Enter the second number: Study Year: 2023-2024







```
int num1, num2;
      cout<<"Enter the first number:";</pre>
      cout << endl;
      cin >> num 1;
      cout << "Enter the second number: ";
      cout << endl;
      cin >> num2;
            // Function call
      add_two_numbers (num1, num2);
      return (0);
// Function definition
void add_two_numbers (int a, int b)
{
      cout < "The sum is:" < a + b;
```



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4. Functions with parameters and with a return value

In this type of function, the calling function passes the parameter to the called function and called function to send back value to the calling function(main program).

Ex 10:

- Write a C++ Program to find the square of several numbers using function.

```
#include <iostream.h>

// Function prototype (declaration)
int square (int);

void main()
{
    int i,max,value;
```

max=4;

while (i<=max)

// Function call

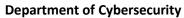
i=0;

Output

```
i= 0 the square is=0i= 1 the square is=1i= 2 the square is=4
```

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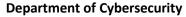






```
value=square(i);
                  cout<<"i="<<i<"the square is="<<value<<endl;
                  i=i+1;
     }
     // Function definition
     int square(int n)
     {
           int result;
           result=n*n;
           return (result);
Ex 11:
       Write a C++ program to perform addition subtraction multiplication
        division of two numbers.
     #include <iostream.h>
                                                          Output1
     // Function prototype (declaration)
                                            Enter the first number:13
     float add(float,float);
                                           Enter the second number:2
                                                             Study Year: 2023-2024
     float sub(float,float);
                                          Enter the choice(1=add.,2=sub.,3=mult.,4=div.):4
```







```
float mult(float,float);
float div(float,float);
void main()
      int i;
                                                            Output2
      float num1,num2,result=0;
                                            Enter the first number:12
                                           Enter the second number:3
      cout << "Enter the first number:";
                                           Enter the choice(1=add.,2=sub.,3=mult.,4=div.):1
      cin>>num1;
      cout<<"Enter the second number:";</pre>
      cin>>num2;
      cout << "Enter the choice(1=add.,2=sub.,3=mult.,4=div.):";
      cin>>i;
      if (i==1)
                                                               Output3
                                           Enter the first number:5
                                           Enter the second number:8
             // Function call
                                           Enter the choice(1=add.,2=sub.,3=mult.,4=div.):2
             result=add(num1,num2);
```







```
else if(i==2)
      // Function call
      result=sub(num1,num2);
}
else if (i==3)
      // Function call
      result=mult(num1,num2);
}
else if (i==4)
      // Function call
      result=div(num1,num2);
else
```







```
cout<<"Error!!!";
             cout << endl;
      cout<<"The result is:"<<result;</pre>
// Function definition
float add(float n1, float n2)
      float r;
      r=n1+n2;
      return (r);
// Function definition
float sub(float n1, float n2)
      float r;
```







```
r=n1-n2;
      return (r);
// Function definition
float mult(float n1, float n2)
{
      float r;
      r=n1*n2;
      return (r);
// Function definition
float div(float n1, float n2)
{
      float r;
      r=n1/n2;
      return (r);
}
```