**Al- Mustaqbal University **

**College of Sciences**

**Department of Cybersecurity**

**Data Structures**

 Second stage

Lecture 2/ Practical Part

2025-2024

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**C++ For Loop**

 ***For (initialization; condition; incr/decr){***

 ***//code to be executed***

 }

{Print numbers from 1 to 10}

**1. #include<iostream>**

 **2. using namespace std;**

**3. int main() {**

 **4. for(int i=1;i<=10;i++){**

**5. cout<*<*i*<"\n";***

{Find Factorial of a number ? Factorial on n = 1\*2\*3\*...\*n }

**1. #include<iostream>**

 **2. using namespace std;**

 **3. int main() {**

**4. int i, n, factorial = 1;**

 **5. cout << "Enter a positive integer: ";**

 **6. cin >> n;**

**7. for (i = 1; i <= n; ++i) {**

**8. factorial \*= i;**

**9.}**

**10.** **cout<< "Factorial of "<<n<<" = "<<factorial;**

**11. return0; (1)**

**C++ While loop**

 ***While (condition){***

 ***//code to be executed***

***}***

{Print number from 1 to 10}

**1. #include<iostream>**

**2. using namespace std;**

 **3. int main() {**

 **4. int i=1;**

**5. while(i<=10)**

 **6. {**

**7. cout<<<"\n";**

**8. i++;**

**9. }**

**10. }**

**C++ Do-While Loop**

 ***do {***

***//code to be executed***

 ***}while (condition);***

**(2)**

{Max and Min number}

**1. #include<iostream>**

**2. using namespace std;**

**3. int main()**

 **4. {**

 **5. int n, max=0, min=32767;**

**6. char choice;**

**7. do**

**8. {**

 **9. cout<<"Enter number : ";**

 **10. cin>>n;**

**11. if(n>max)**

**12. max=n;**

 **13. if(n<min)**

**14. min=n;**

**15. cout<<"Do you want to Continue(y/n)? ";**

**16. cin>>choice;**

 **17. }while(choice=='y' || choice=='Y');**

**18. cout<<"Maximum Number :"<<max<<"\nMinimum Number :"<<min;**

**19. return0;**

**20.}**

**(3)**

**C++ Array**



**{**Sum of numbers in an array **}**

**1. #include<iostream>**

 **2. using namespace std;**

 **3. int main()**

 **4. {**

 **5. int numbers[5], sum = 0;**

 **6. cout << "Enter 5 numbers: ";**

 **7. for (int i = 0; i < 5; ++i)**

 **8. {**

**9. cin >> numbers[i];**

**10.sum += numbers[i];**

 **11.}**

**12.cout << "Sum = " << sum << endl;**

 **13. return 0;**

**14.} (4)**

**C++ Function and Array**

***\*Passing One-dimensional Array to a Function***

{Display the marks of students }

**1. #include<iostream>**

 **2. using namespace std;**

**3. void display(int m[5])**

**4. {**

 **5. cout << "Displaying marks: "<< endl;**

 **6. for (int i = 0; i < 5; ++i)**

 **7. {**

**8. cout << "Student "<< i + 1 <<": "<< m[i] << endl;**

 **9. } }**

 **10.int main()**

**11.{**

**12.int m[5] = {88, 76, 90, 61, 69};**

**13.display(m);**

 **14.}**

**(5)**

***\*\* Passing Multidimensional Array to a Function***

{Display the elements of Multidimensional Array }

**1. #include<iostream>**

 **2. using namespace std;**

 **3. void display(int n[3][2])**

 **4. {**

 **5. cout << "Displaying Values: " << endl;**

**6. for(int i = 0; i < 3; ++i)**

**7. {**

 **8. for(int j = 0; j < 2; ++j)**

 **9. {**

 **10. cout << n[i][j] <<” “;**

**11. }**

 **12. }**

 **13. }**

 **14. int main() {**

**15. int num[3][2] = {**

 **16. {3, 4},**

**17. {9, 5},**

 **18. {7, 1}**

 **19.};**

**20. display(num);**

**21. } (6)**