|  |  |  |  |
| --- | --- | --- | --- |
| **Object Oriented Programming Lab 01** | | | |
| **Course Code:** | COMP-112L | **Class** | CS(B) F24 |
| **Lab Engineer** | Laiba Khalid | **Semester** | 2nd |
| **Lab Title** | Operators in C++ | **Section** | - |
| **Content Covered** | Arithmetic, Assignment, Comparison, and Logical Operators | | |

**Blue text on a black background

Description automatically generated**

**C++ Operations**

1. **Arithmetic Operators:**

* Arithmetic operators are used to perform common mathematical operations.
* **Operators:** Add, subtract, multiply, divide, and modulus.

**Practice Task 02:**

Write a C++ program that accepts two integer inputs from the user and perform **arithmetic operations** on these inputs.

|  |
| --- |
| #include <iostream>  using namespace std;  int main() {  // Variable declaration  int num1, num2;  bool result;  // Taking input from the user  cout << "Enter the first integer: ";  cin >> num1;  cout << "Enter the second integer: ";  cin >> num2;  // Arithmetic Operators  cout << "\nArithmetic Operators: \n";  cout << "Addition: " << (num1 + num2) << endl;  cout << "Subtraction: " << (num1 - num2) << endl;  cout << "Multiplication: " << (num1 \* num2) << endl;  cout << "Division: " << (num1 / num2) << endl;  cout << "Modulus: " << (num1 % num2) << endl;  return 0;  } |

1. **Assignment Operations:**

* Assignment operators are used to assign values to variables.
* In the example below, we use the **assignment** operator (=) to assign value **10** to a variable called **x**:

**x=10;**

* **Operators: =, +=, -=,** \*=, /= , %=, !=

**Practice Task 02:**

Write a C++ program that accepts two integer inputs from the user and perform **assignment operations** on these inputs.

|  |
| --- |
| #include <iostream>  using namespace std;  int main() {  // Variable declaration  int num1, num2;  bool result;  // Taking input from the user  cout << "Enter the first integer: ";  cin >> num1;  cout << "Enter the second integer: ";  cin >> num2;  // Assignment Operators  cout << "\nAssignment Operators: \n";  int x = num1; // Using num1 for assignment operation  x += num2;  cout << "x += num2: " << x << endl;  x -= num2;  cout << "x -= num2: " << x << endl;  x \*= num2;  cout << "x \*= num2: " << x << endl;  x /= num2;  cout << "x /= num2: " << x << endl;  x %= num2;  cout << "x %= num2: " << x << endl;  return 0;  } |

1. **Comparison Operators:**

* Comparison operators are used to compare two values (or variables). This is important in programming, because it helps us to find answers and make decisions.
* The return value of a comparison is either 1 or 0, which means **true** (1) or **false** (0). These values are known as **Boolean values**.
* **Operators: ==, <,** >, >=, <=, !=

**Practice Task 03:**

Write a C++ program that accepts two integer inputs from the user and perform **comparison operations** on these inputs.

|  |
| --- |
| 1. #include <iostream> 2. using namespace std; 3. int main() { 4. // Variable declaration 5. int num1, num2;   bool result;  // Taking input from the user  cout << "Enter the first integer: ";  cin >> num1;  cout << "Enter the second integer: ";  cin >> num2;  // Comparison Operators  cout << "\nComparison Operators: \n";  cout << "num1 == num2: " << (num1 == num2) << endl;  cout << "num1 != num2: " << (num1 != num2) << endl;  cout << "num1 > num2: " << (num1 > num2) << endl;  cout << "num1 < num2: " << (num1 < num2) << endl;  cout << "num1 >= num2: " << (num1 >= num2) << endl;  cout << "num1 <= num2: " << (num1 <= num2) << endl;  return 0;  } |

1. **Logical Operators:**

* As with comparison operators, you can also test for **true** (1) or **false** (0) values with **logical operators**.
* Logical operators are used to determine the logic between variables or values:
* **Operators:** !, &&, ||

**Practice Task 04:**

Write a C++ program that accepts two integer inputs from the user and perform **logical operations** on these inputs.

|  |
| --- |
| #include <iostream>  using namespace std;  int main() {  // Variable declaration  int num1, num2;  bool result;  // Taking input from the user  cout << "Enter the first integer: ";  cin >> num1;  cout << "Enter the second integer: ";  cin >> num2;  // Logical Operators  cout << "\nLogical Operators: \n";  result = (num1 > 0) && (num2 > 0);  cout << "(num1 > 0) && (num2 > 0): " << result << endl;  result = (num1 > 0) || (num2 > 0);  cout << "(num1 > 0) || (num2 > 0): " << result << endl;  result = !(num1 > num2);  cout << "!(num1 > num2): " << result << endl;  return 0;  } |