**C++ Interview Questions**

* What is a variable in C++?
* Variable is a container for storing the data values.
* To create a variable, define the type and assign it a value.

**syntax:** type variableName = value;

* We can also declare a variable without assigning the value and can assign it later.
* If we can assign a value in an existing variable, it will overwrite the previous value.

* Explain the concept of data types in C++
* **int** - 2 or 4 bytes - store whole numbers, without decimals.
* **float** - 4 bytes - stores fractional numbers, containing one or more decimals. Sufficient for storing 6 - 7 decimal digits.
* **char** - 1 byte - stores a single character/letter/number, or ASCII values.
* **double** - 8 bytes - stores fractional numbers, containing one or more decimals. sufficient for storing 15 decimal digits.
* **boolean** - 1 byte - stores true or false values.
* What is the difference between automatic and static variables in C++?

**Static:** Static variables are typically used to maintain state across function calls or to provide private or restricted access to variables within a specific scope. It is declared using the **static** keyword within a function or at the global scope.

**Syntax:** static type variable = value;

**Auto:** The automatic variable is a type of local variable that is automatically created and destroyed within its scope. When a function is called, the automatic variables declared within that function are created, and their memory is allocated on the stack. When the function exits or returns, these automatic variables are automatically destroyed, and their memory is deallocated.

**Syntax:** type variable = value;

* How do you declare a constant variable in C++?
* A constant variable, also known as a "const" variable, is a variable whose value cannot be changed after initialization. It is declared using the **const** keyword.

**Syntax:** const type variable = value;

* What are the arithmetic operators in C++?
* **Addition(+):** Adds together two values.

**Eg:** x + y

* **Subtraction(-):** Subtracts one value from another.

**Eg:** x - y

* **Multiplication(\*):** Multiplies two values.

**Eg:** x \* y

* **Division(/):** Divides one value by another.

**Eg:** x / y

* **Modulus(%):** Returns the division remainder.

**Eg:** x % y

* **Increment(++):** Increases the value of a variable by 1.

**Eg:** ++x

* **Decrement(--):** Decreases the value of a variable by 1.

**Eg:** –x

* Explain the difference between prefix and postfix increment operators (++i and i++) in C++?
* If you use the **++** operator as a **prefix** like **++ var**, the value of **var** is incremented by 1, then it returns the value. If you use the **++** operator as a **postfix** like **var ++,** the original value of **var** is returned first then **var** is incremented by 1.
* How do you determine the size of a data type in C++?
* The four types of variables are defined in **integerType**, **floatType**, **doubleType** and **charType**. The size of the variables is calculated using the **sizeof()** operator.
* What are the logical operators in C++?
* **Logical AND(&&):** Returns true if both statements are true.

**Eg:** x < 5 && x < 10

* **Logical OR(||):** Returns true if one of the statements is true.

**Eg:** x < 5 || x < 4

* **Logical NOT(!):** Reverse the result, return false if the result is true.

**Eg:** !(x < 5 && x < 10)

* How does the ternary operator (conditional operator) work in C++?
* A ternary operator evaluates the test condition and executes a block of code based on the result of the condition.

**Syntax:** condition ? expression1 : expression2;

* If the condition is true, the expression1 is executed.
* And, if the condition is false, expression2 is executed.