**Java Variables and Data  types**

**Assignment 5**

1. **What is statically typed and dynamically typed programming language?**

**Let's try to understand statically type and dynamically typed programming language one by one:-**

***Statically typed programming language*: The Statically typed variable must be specified at the time of its declaration, and that type cannot be changed later on. The type of a variable is determined at compile-time, and the compiler can check for type compatibility between variables and expressions. Examples of statically typed languages include c++ , java etc.**

1. **What is the variable in java?**

**A variable in Java is a storage location for holding a value, which can be of various types, like integer, float, boolean, etc.It has a name and a type, and it can be assigned a value, which can change during the execution of the program.**

1. **How to assign a value to a variable?**

**we can assign a value to a variable using the assignment operator (=). The assignment operator is used to store a value in a variable. The basic syntax for assigning a value to a variable**

* **i have written below:-**

**variable\_name =we can write the value here;**

1. **What are primitive data types in java?**

***There are following type of data type in java :-***

* **byte: represents a 8-bit signed integer.**
* **short: represents a 16-bit signed integer.**
* **int: represents a 32-bit signed integer.**
* **long: represents a 64-bit signed integer.**
* **float: represents a single-precision 32-bit IEEE 754 floating-point number.**
* **double: represents a double-precision 64-bit IEEE 754 floating-point number.**
* **boolean: represents a true or false value.**
* **char: represents a single 16-bit Unicode character.**

*Note: these are all the topics I have studied in my college .*

1. ***What are the identifiers in java?***

**Identifier is a name which is used to identify a variable, class method . so that it can be easily identified and accessed in the code.**

**👉 Whenever we will define identifier in java then we will have to follow some rule and the rule i have written below:-**

* **Identifiers cannot be a keyword or reserved word in Java.**
* **Identifiers cannot contain spaces or special characters, except for the underscore (\_) and dollar sign ($).**
* **Identifiers are case-sensitive, meaning that myVariable and myvariable are considered different identifiers.**
* **Identifiers can be of any length, but it is recommended to use meaningful and concise names.**

1. **List of operators in java?**

**The type of operator in java has written below:-**

* **Arithmetic operators: used to perform mathematical operations such as addition (+), subtraction (-), multiplication (\*), division (/), and modulus (%).**
* **Logical operators: used to perform logical operations such as AND (&&), OR (||), and NOT (!).**
* **Bitwise operators: used to perform bit-level operations such as AND (&), OR (|), XOR (^), left shift (​1**
* **Ternary operator: used as a shorthand for an if-else statement, which takes three operands (condition, value if true, value if false).**
* **Assignment operators: used to assign a value to a variable such as (=), (+=), (-=), (\*=), (/=), and (%=).**
* **Conditional operator: used to assign a value to a variable based on a condition ( condition ? value if true : value if false )**
* **Instanceof operator: used to check if an object is an instance of a particular class or one of its subclasses.**
* **Miscellaneous operators: such as the dot operator (.) and the new operator, which are used to access members of a class or create new objects.**

1. **Explain detail about Increment and decrement operators and give an examples**

**Unary operator is called increment and decrement operator in java**

* **Increment Operator:- The increment operator , we can write  ++ symbol and can be used as a prefix or postfix operator.**

**int x = 5; int y = ++x; // x is now 6, y is also 6**

**When used as a postfix operator, it will  increment the value of the variable after it is used in the expression.**

**For example:-**

**i have written the code for increments the value of x after it is used in the expression:**

**int x = 5; int y = x++; // x is now 6, but y is still 5**

**The decrement operator is represented by the -- symbol and works similarly to the increment operator.**

**int x = 5; int y = --x; // x is now 4, y is also 4**

**When used as a postfix operator, it decrements the value of the variable after it is used in the expression.**

**For example:-**

**i have written the code for decrements the value of x after it is used in the expression:**

**int x = 5; int y = x--; // x is now 4, but y is still 5**

*Real life example:* **A real-life example of using an increment operator is counting the number of items. Let's say a store has 5 items in the beginning and when a customer buys one item, the store uses the increment operator to increase the number of items by 1.**

**int items = 5; items; // items is now 6**