Java Variables and Data types

Assignent Questions

Assignment Questions

1. **What is statically typed and Dynamically typed Programming Language ?**

   Ans :

- **Statically typed and dynamically typed are two different approaches to type checking in programming languages**
- **Statically typed programming language :**

  In a statically typed language, variables are bound to a specific data type during compile time. The type of every variable and expression is known and checked before the program is executed

  The compiler analyzes the code and ensures that the operations performed on variables are valid based on their declared types. Examples of statically typed languages include C, C++, Java, and Swift.

- **Dynamically typed programming language :**

  In a dynamically typed language, variables are not bound to a specific type during compile time. The type of a variable is determined and checked during runtime, as the program is executed.

  Variables can be assigned values of different types throughout the program's execution. Examples of dynamically typed languages include Python, Ruby, JavaScript, and PHP.

2. What is the variable in Java ?

Ans :

- **In Java, a variable is a named storage location that holds a value of a specific data type. It represents a memory location that can be used to store and manipulate data within a program.**

- **Before using a variable, it must be declared with a specific type**
  int age;
  Where age is the variable

- **Data types: Java is a statically typed language, which means variables must have a specific data type. Java provides several built-in data types, such as int, double, boolean, char, and more.**

- **The variables are written in camel case in java.**

3. How To Assign a Value To Variable ?

Ans :

- **Assign a value to a variable using the assignment operator (=). The assignment operator assigns the value on the right side of the operator to the variable on the left side.**
  Ex :
  int age = 18;
  The variable age is declared as an int and assigned the value 18.

4. What are Primitive Data types in Java ?

Ans :

- **In Java, primitive data types are the most basic types that represent fundamental values. They are predefined by the language and are not objects. Java provides eight primitive data types, which can be categorized into four groups :**

- **Integer Types :**

  byte: Represents a signed 8-bit integer (-128 to 127).

  short: Represents a signed 16-bit integer (-32,768 to 32,767).

  int: Represents a signed 32-bit integer (-2,147,483,648 to 2,147,483,647).

  long: Represents a signed 64-bit integer (-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807).

- **Floating-Point Types :**

  float : Represents a single-precision 32-bit floating-point number.

  double : Represents a double-precision 64-bit floating-point number.

- **Character Type:**

  char : Represents a single Unicode character (16-bit).

- **Boolean Type:**

  boolean: Represents a boolean value (true or false).

5. What are the Identifiers in Java ?

Ans :

- **In Java, identifiers are names used to identify variables, methods, classes, interfaces, packages, and other program elements. An identifier acts as a unique identifier for a specific program element within the scope it is defined.**

- **Naming Rules:**

  Identifiers must start with a letter (A-Z or a-z), underscore (_), or dollar sign ($).

  The dollar sign is usually reserved for generated code and rarely used in regular programming.

  After the first character, identifiers can contain letters, digits (0-9), underscores, or dollar signs.

  Identifiers are case-sensitive, meaning myBag and mybag are considered different identifiers.

- **Reserved Keywords:**

  Java has a set of reserved keywords that have predefined meanings and cannot be used as identifiers. Examples of reserved keywords include public, class, if, while, and return. You cannot use these keywords as identifiers.

6. List the Operators in Java ?

Ans :

- **Arithmetic Operators.**
- **Assignment Operators.**
- **Logical Operators.**
- **Relational Operators.**
- **Unary Operators.**
- **Bitwise Operators.**
- **Ternary Operators.**
- **Shift Operators.**

7. Explain about Increment and Decrement operators and give an examples

Ans :

- **The increment and decrement operator is used to increment data by 1 or decrement the data by 1**

- **There are two types of increment operator**

  a. **Pre increment operator (++a)**
  b. **Post increment operator (a++)**

In ++a first the value of a is incremented and then it is used
In a++ first the value of a is used and then it will be incremented by 1

Ex :

```
class increment
{
   public static void main(String [] args)
   {
   int a=3;
   int b;
   b=a++;
   System.out.println(a);
   System.out.println(b);
   }
}
```

- **There are two types of decrement operator**

  a. **Pre decrement operator (- -a)**
  b. **Post decrement operator (a- -)**

In - -a the value of a is first decremented by 1 then used
In a- - the value of a is first used then decrement by 1

Ex :

```
 class increment
{
   public static void main(String [] args)
   {
   int a=3;
   int b;
   b=a- -;
   System.out.println(a);
   System.out.println(b);
   }
}
```