Arrays in Java

Assignment Questions

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1. **What is the default value of Array for different data types ?**

   Ans :

- **For numeric types :**

  The default value is 0 for integral types byte, short, int, long

  The default value is 0.0 for floating-point types float, double

- **For String data type :**

  The default value is null for string data type.

- **For boolean data type :**

  The default value is false for the boolean data type.

2. **Can you pass the negative number in Array size ?**

   Ans :

- **In Java, the size of an array must be a non-negative integer. we cannot pass a negative number as the size of an array.**

- **Attempting to create an array with a negative size will result in a runtime exception called NegativeArraySizeException.**

3. Where does Array stored in JVM memory ?

Ans :

- **In Java, when we create an array, it is stored in the Java Virtual Machine's (JVM) heap memory. The heap memory is a region of memory used for the dynamic allocation of objects and arrays at runtime.**
- **It is distinct from the stack memory, which is used for storing method call frames and local variables.**
- **When we create an array using the new keyword, the JVM allocates memory from the heap to hold the elements of the array.**
- **The size of the allocated memory depends on the data type of the array and its length (number of elements**

4. What are the disadvantages of Array ?

Ans :

- **Fixed Size :**

  Arrays have a fixed size, meaning once they are created, their length cannot be changed. If we need a dynamically sized collection, we would need to create a new array with a different size and copy the elements from the old array to the new one.

  It can not be increased or decreased once the array is decleard. For incrementation and decrementation of array we need to creat the new array.

- **Limited Data Types :**

  Arrays can only hold elements of a single data type. To create a collection of mixed data types, you would need to use arrays of objects, which can lead to increased memory overhead.

5. What is an Anonymous Array in Java ? Give an example?

Ans :

- **In Java, an anonymous array is an array that is created without explicitly declaring a variable to hold it. It is a compact way to create and use an array for a short duration without the need for a named reference variable.**
- **Anonymous arrays are typically used when you need to pass a temporary array as an argument to a method or as part of an array initializer.**
- **Anonymous arrays are created on the fly, and their reference is not stored in any variable. They exist only for the duration of the expression or method call in which they are used.**

- **Anonymous arrays are useful when you need to work with small, temporary arrays and don't want to create a named variable for them.**
- **They offer a concise way to pass or use arrays without the need for additional variable declarations.**
- **Ex :**

```
class Calc {
    public int sub(int a[]){
        int result = 0;
        for (int n : a){
        result = n - result;
        }
        return result;
    }
}
public class AnonymousArray {
    public static void main (String[] args){
        Calc obj = new Calc ();
        int result = obj.sub(new int[]{1,4,7,8});
        System.out.println (result);
    }
}
```

Output :

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6. What are the different ways to traverse an Array in java ?

Ans :

- **Using a for loop: This is the simplest way to traverse an array. You can use a for loop to iterate through the array, accessing each element one by one.**

```
int[ ] array = {1, 2, 3, 4, 5};

for (int i = 0; i < array.length; i++) {

  System.out.println(array[i]);

}
```

- **Using a while loop: You can also use a while loop to traverse an array. In this case, you would need to keep track of the index of the current element in the array.**

```
int[ ] array = {1, 2, 3, 4, 5};
int i = 0;

while (i < array.length) {

  System.out.println(array[i]);
  i++;

}
```

- **Using an enhanced for loop: which is specifically designed for traversing arrays. The Enhanced for loop works by iterating over the elements of the array, one by one.**

```
int[ ] array = {1, 2, 3, 4, 5};

for (int element : array) {

  System.out.println(element);

}
```

7. What is the difference between length and length() method Give an Examples ?

Ans :

- **length (Array Property):**

a. length is a property of arrays in Java that gives the number of elements in the array.

b. It is used to find the size or length of an array.

c. It is not a method, it is a public final instance variable.

d. The length property can only be used with arrays and not with other data types.

```java
public class Length {
    public static void main (String[] args){
        int a [] = {2,6,3,1,8};
        System.out.println (a.length);
    }
}
```

Output :

```
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```

- **length() (String Method) :**

a. length() is a method of the String class in Java that returns the number of characters in the string.

b. It is used to find the length of a string.

c. It is a method and not a property.

d. The length() method can only be used with objects of the String class.

```
public class Length {
   public static void main (String[] args){
      String name = "varshab";
      System.out.println(name.length());
    }
}
```

Output :

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