int a;

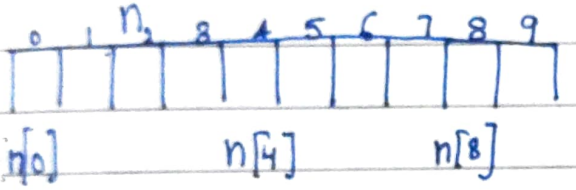
Class: X
Topic: Arrays

Date: 15.07.2024
Teacher: Prabhdeep

Array is composite/Derived datatype, it is a structure created in a memory of same data type.

Why we need arrays
how to display 10 numbers by user input

Arrays → Single n[]
Double n[][]



2-4 marks sec-A
& 2 programs sec-B

Things to do in array
→ Accessing array elements
→ searching
Linear
Binary
→ sorting
selection
Bubble

Single dimentional Array

how to create array

```
int a[] = new int[10];
Char c[] = new Char[10];
double d[] = new double[10];
```

Storing and accessing array elements

* using Assignment (when you assigning and declaring then not to give size)

```
int a[] = {1, 3, 5, 2, 9};
```

* Using bluej main(int a[])

* Using Scanner class

```
int a[] = new int[10];
a[0] = 5;
a[5] = a[2]+2;
```

subscript no.

if size is 10 so it can only store 10 values and subscript 0-9

Accessing array element:

① Accept 10 numbers in SDA. Display the array elements at even subscript.

not number

```
import java.util.*;
Class sda
{
  import public static void main(String args[])
        {
          Scanner sc = new Scanner(System.in);
          int a[] = new int[10];
          for(int i=0; i<10; i++)
            {
              a[i] = sc.nextInt();
            }
          for(int i=2; i<10; i=i+2)
            {
              System.out.println(a[i]);
            }
        }
}
```

② Accept 10 numbers in SDA. Display the greatest number of the array

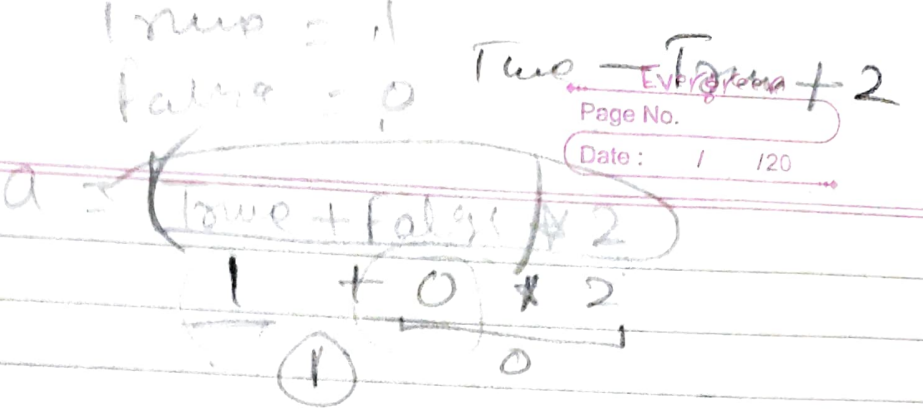
```
import java.util.*;
class gsda
{
   public static void main(String args[])
   {
      Scanner sc = new Scanner(System.in)
      int a[] = new int[10]
      for(int i=0; i<10; i++)
      {a[i] = ~~new~~ sc.nextInt();
      }
       int max = a[0];
      for(int i=1; i<10; i++)
      {
       if(a[i] > max)
          max = a[i];
       }
System.out.println(max);
}
}
```

because 0th value is store at max

③ Accept 10 numbers in a SDA. Create another array to store the squares of this array. Display both the arrays in given format:

Array1	Array2
2	4
3	9
4	16
5	25
⋮	⋮

```
import java.util.*
class Sqsda
{
  public static void main (String args[])
  {
    Scanner sc = new Scanner (System.in)
    int a[] = new int a[10];
    int b[] = new int b[10];
  System.out.println("Enter 10 element in array");
  for(int i=0; i<10; i++)
   {
      a[i] = sc.nextInt();
      b[i] = a[i] * a[i];
   }
System.out.println ("Array 1 \t Array2");
for (int i=0; i<10; i++)
  {
    System.out.println (a[i] + "\t" + b[i]);
  }
}
}
```



Extra questions:

1. Define array.
2. find the error and rewrite the correct program segment:-

```
int m = new int (5);
for (int i=0 ; i<=5 ; i++)
    m[i]= i ;
```

3. What do you mean by direct initialization of an array?
4. State the total size in bytes of the arrays a[4] of char data type and m[5] of int data type.
5. What do you mean by the subscript of an array?
6. If int m[ ] = {2,3,4,5,6}. find a and b
   (i) a = m.length (ii) b= m[2] + m[3] * m[4]
7. Give output:-

```
int a[] = {1, 3, 5, 7};
System.out.println (a[1] + ' ' + a[3]);
```

8. Which element is represented by b[20];
9. WAP in SDA to input 20 different numbers. Display the sum of all the numbers which are divisible by 3.

Answerkey

2. int m[ ] = new int[5];
   for (int i=0; i<5 ; i++)
   m [i] = i;
3. eg. int m[ ] = {2, 9, 12, 14, 20};
4. char a[4] contains 8 bytes
   int m[5] contains 20 bytes.
5. eg. m[3], here 3 is the subscript of array m.
6. a=5 b= 4+5 * 6
   4+30
   = 34

Class X
Topic Arrays

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7. 3 7

8. 21st element of array b

9.
```
import java.util.*;
class Q9
{
    public static void main(String args[])
    {
      Scanner sc = new Scanner(System.in);
      int m[] = new int[20];
      int s = 0;
    System.out.println("Enter 20 numbers:");
     for(int i=0; i<20; i++)
      {
        m[i] = sc.nextInt();
        if(m[i]%3==0)
            s = s+m[i];
      }
System.out.println("The sum of the nubers:"+s);
}
}
```