Arrays 1 - D

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Arrays

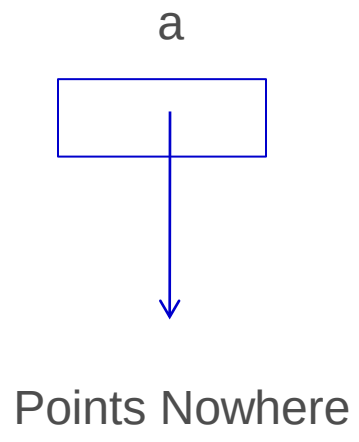
- ✓ A finite and ordered set of contiguous memory locations
- ✓ Store related, similar type of data items
- ✓ Index / Subscript is used to point out an Element
- ✓ Starting Index: 0
- ✓ Ex: Salary of Employees -- salary[10]

1 – D Array Array – Declaration

- ✓ Don’t declare the size
- ✓ Create a Reference Variable

  type name[ ]; or type[ ] name;
- ✓ Example

  int a[ ];



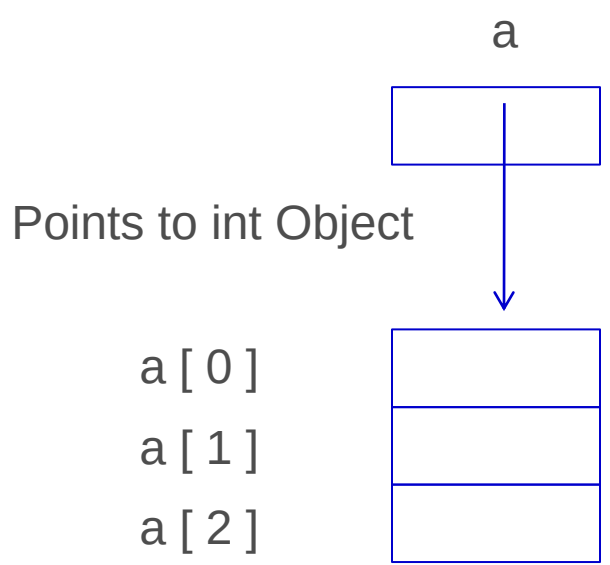
1 – D Array – Memory Allocation

type name[ ];

name[ ] = new type[size];

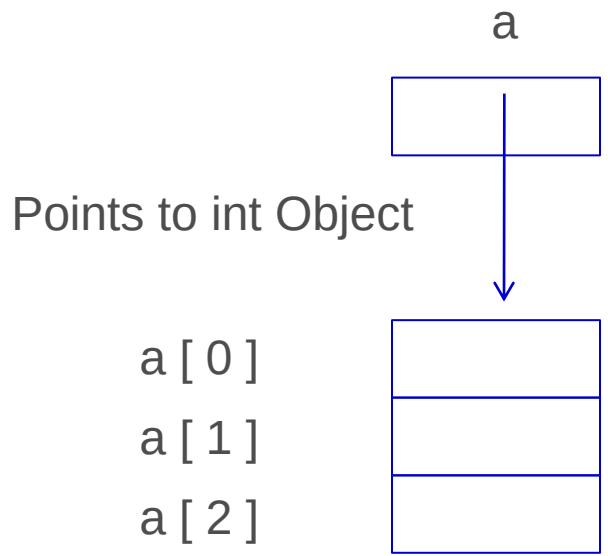
- ✓ Example

int a[ ];
a = new int [3];



1 – D Array – Declaration & Memory Allocation

type name[ ] = new type[size];



✓ Example

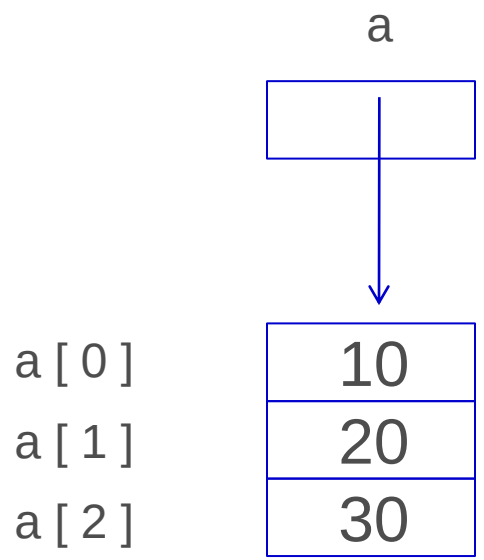
int a[ ] = new int [3];

1 – D Array – Initialization – Placing Values

name[index] = value;

- ✓ Example

a[0] = 10;
a[1] = 20;
a[2] = 30;

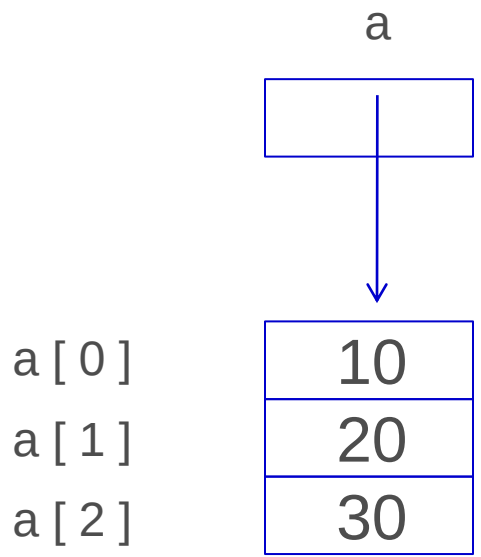


1 – D Array – Declaration and Initialization

type name[ ] = { list of values };

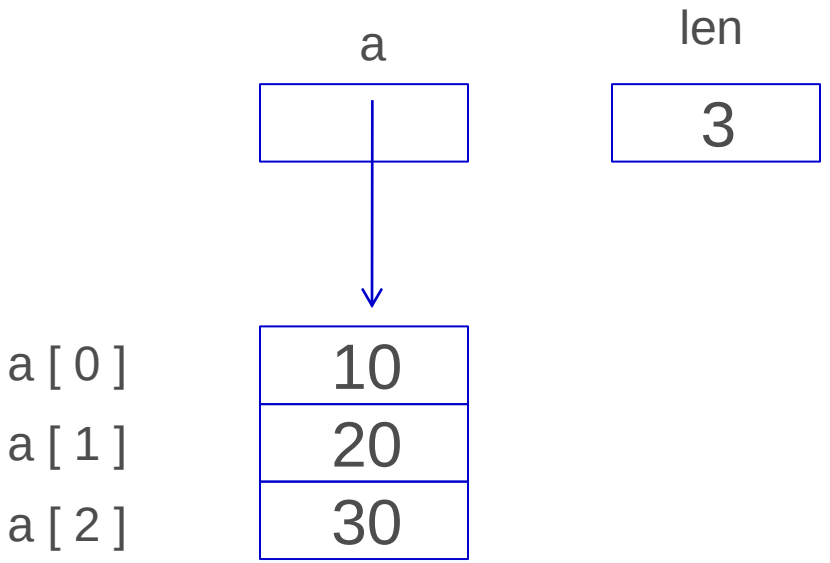
✓ Example

int a[ ] = { 10,20,30 } ;



1 – D Array – Length

name.length;



✓ Example

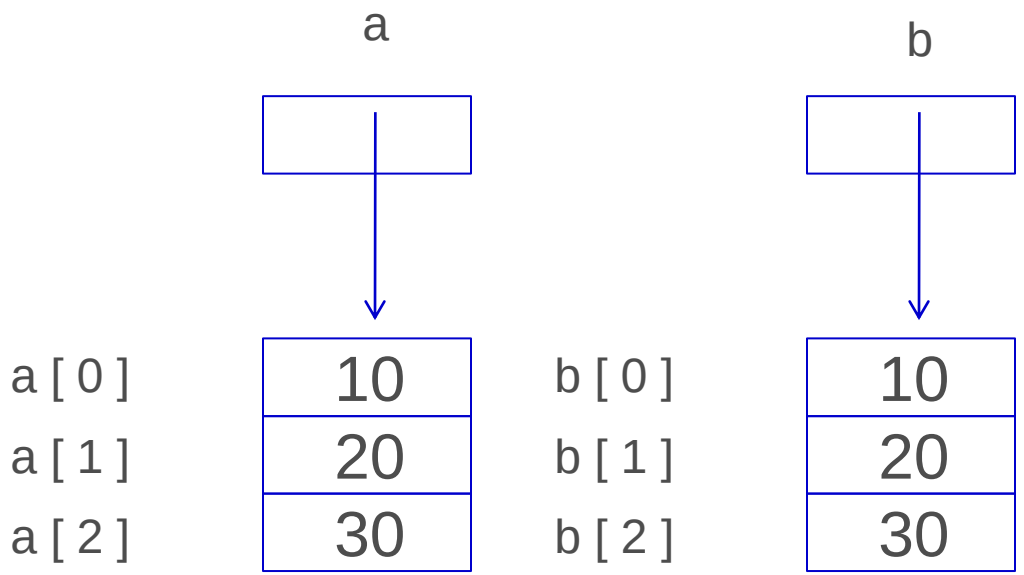
```
int a[  ] = { 10,20,30 } ;
int len;
len = a.length;
```

1 – D Array – Copying

name2 = name1;

- ✓ Example

```
int a[  ] = { 10,20,30 } ;
int b[  ];
b = a;
```



Example1 – Array 1D

```
class Array_1D_Ex1
{
  public static void main(String args[])
  {
        int number[];
        number = new int[3];
        number[0] = 10;
        number[1] = 20;
        number[2] = 30;
        System.out.print(" The Given List is : ");
        for (int i = 0; i < 3; i++)
        {
              System.out.print("  " + number[i] );
        }
  }
}
```

Example2 – Array 1D

```
class Array_1D_Ex2
{
  public static void main(String args[])
  {
            int number[] = new int[3];
            number[0] = 10;
            number[1] = 20;
            number[2] = 30;
            System.out.print(" The Given List is : ");
            for (int i = 0; i < 3; i++)
            {
                        System.out.print("  " + number[i] );
            }
  }
}
```

Example3 – Array 1D

```
class Array_1D_Ex3
{
  public static void main(String args[])
  {
            int number[] = {10,20,30};
            int n = number.length;
            System.out.print(" The Given List is : ");
            for (int i = 0; i < n; i++)
            {
                        System.out.print("  " + number[i] );
            }
  }
}
```

Example – Sorting a given set of Numbers

```
class NumberSorting
{
  public static void main(String args[])
  {
                int number[] = {55,40,80,65,71};
                int n = number .length;

                System.out.print(" The Given List is : ");
                for (int i = 0; i < n; i++)
                {
                        System.out.print("  " + number[i] );
                }
                 System.out.print('\n');
```

```
//Sorting Procedure
for (int i = 0; i<n; i++)
{
     for (int j = i+1; j < n; j++)
     {
        if (number[i] < number[j])
       {
           int temp = number[i];
           number[i] = number[j];
           number[j] = temp;
        }
      }
   }
   System.out.print(" The Sorted List is : ");
   for (int i = 0; i < n; i++)
   {
           System.out.print("  " + number[i] );
    }
}
}
```

References

- ✓ Programming with Java – A Primer - E. Balagurusamy, 3rd Edition, TMH

Thank You