

# Java Programming AP Edition

## U3C7 1-D Array

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ARRAY PROCESSING II

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# Array Processing II

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**Iterative Loop:** (Counter-based Loop)

**Traversal Upward Loop:**

**Traversal Downward Loop:**

**Two-way Traversal Loop:**

**Traversal with Step Size:**

**Reverse of an Array:** (Compared with reverse of integer and reverse of string)

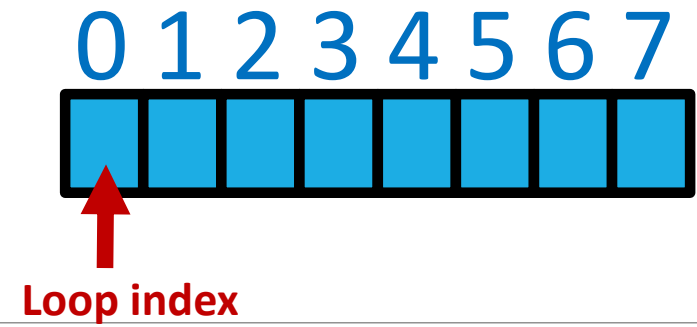


# Iterative Loop (Counter Based Loop)

```
public static void iterations(){  
    System.out.println("\nIterations Program");  
    int numberOfIterations = 5;  
    for (int i=0; i<numberOfIterations; i++){  
        System.out.printf("Iteration %d\n", i);  
        System.out.println("Repeated Message !");  
    }  
}
```



# Traversal Upward Loop

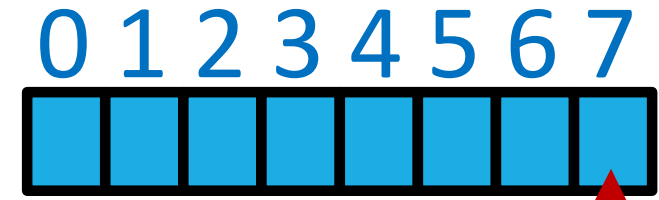


```
public static void traversalUpward(){  
    System.out.println("\nTraversal Upward Program");  
    int[] num = {3,4,5,6,7};  
    for (int i=0; i<5; i++){  
        System.out.println("Iteration "+i+" : "+num[i]);  
    }  
}
```



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# Traversal Downward



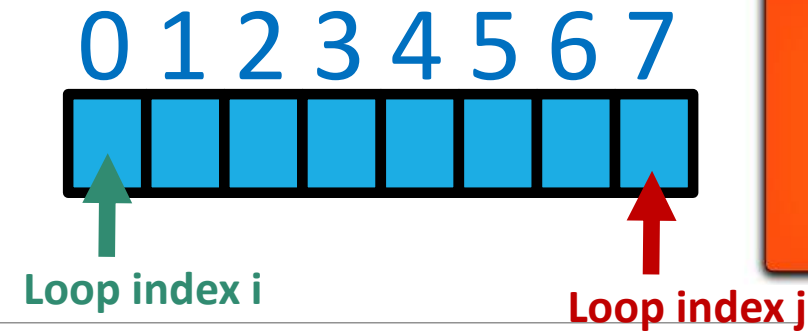
Loop index

```
public static void traversalDownward(){  
    System.out.println("\nTraversal Downward Program");  
    int[] num = {3,4,5,6,7};  
    for (int i=num.length-1; i>=0; i--){  
        System.out.println("Iteration "+i+" : "+num[i]);  
    }  
}
```



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# Two-Way Traversal



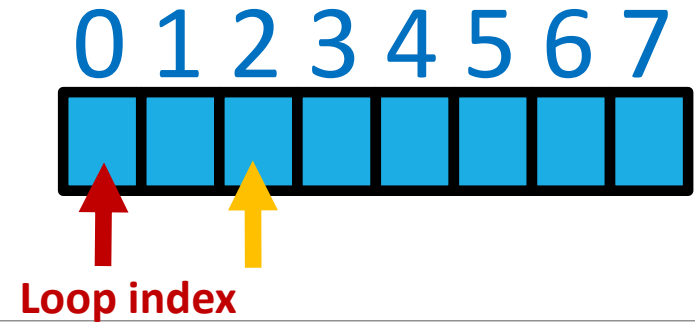
```
public static void traversalTwoWay(){
    System.out.println("\nTraversal Two-way Program");
    int[] num = {3,4,5,6,7};
    for (int i=0, j=num.length-1; i<5; i++){
        System.out.println("Iteration i="+i+": "+num[i]);
        System.out.println("Iteration j="+j+": "+num[j]);
        System.out.println();
        j--;
    }
}
```



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# Traversal with Step Size



```
public static void traversalStepSize(int stepSize){  
    System.out.println("\nTraversal with Step Size");  
    int[] num = {2, 3, 4, 5, 6, 7, 8, 9, 10, 11};  
  
    for (int i=0; i< num.length; i+= stepSize){  
        System.out.println("Iteration " + i + ": " + num[i]);  
    }  
}
```



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# Digits Reversal

```
public static void reverseOfInteger(){
    int x = 34567;
    int y = x;
    int reverseX = 0;
    while (x != 0){
        int d = x % 10;
        reverseX = reverseX * 10 + d;
        x = x /10;
    }
    System.out.println("Reverse Digits of " + y + " is " + reverseX);
}
```

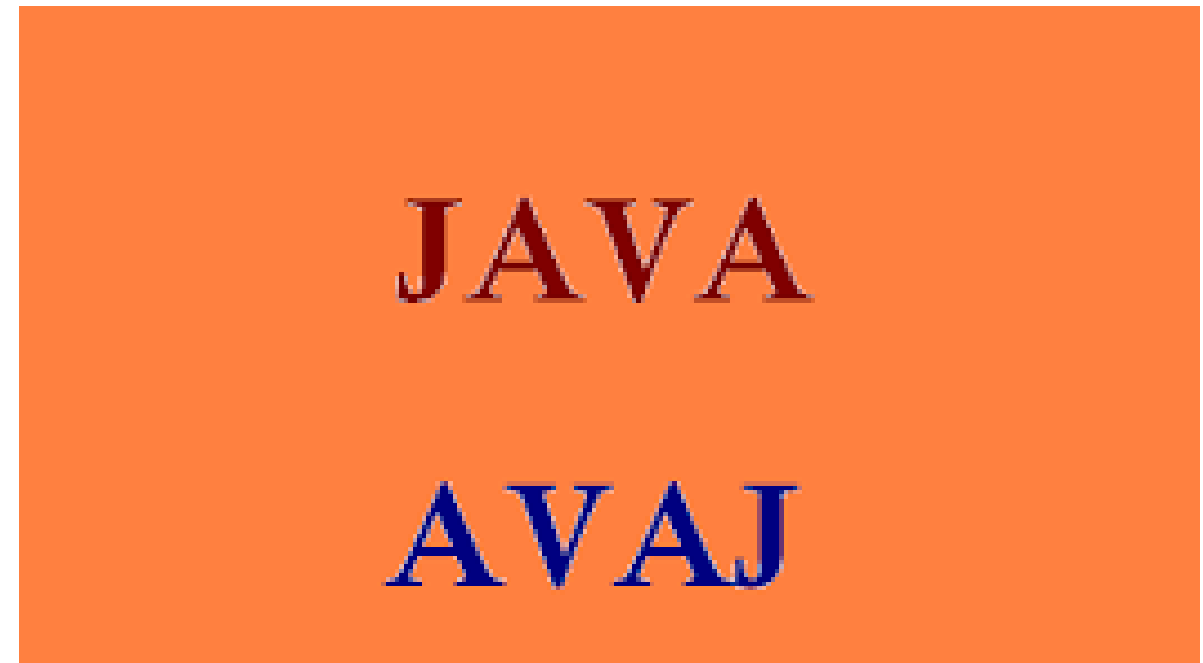
Iterations	X (end of loop )	reverseX
1	3456	7
2	345	76
3	34	765
4	3	7654
5	0	76543



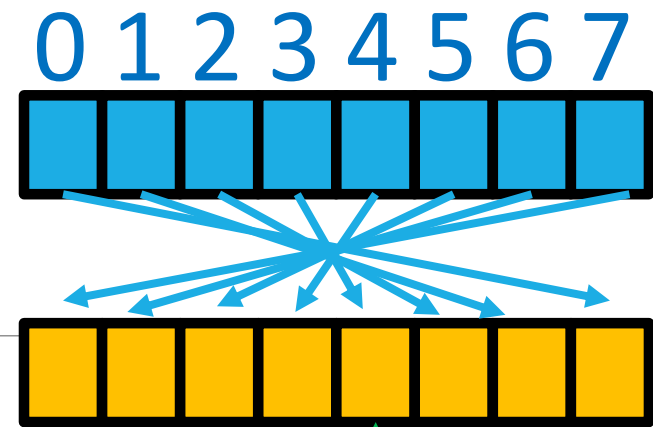


# String Reverse

```
public static void reverseOfString(){
    String x = "ABCDE";
    String y = x;
    String reverseX = "";
    while (x.length() != 0){
        reverseX += x.charAt(x.length()-1);
        x = x.substring(0, x.length()-1);
    }
    System.out.println("Reverse String of " + y + " is " + reverseX);
}
```



# Reverse of an Array



```
public static void reverse(double[] myList){
    double tmp = 0.0;
    for (int i=0; i<(myList.length/2); i++){
        tmp = myList[i];
        myList[i] = myList[myList.length-1-i];
        myList[myList.length-1-i] = tmp;
    }
}
```

myList.length/2



# Demo Program: ArrayProcessingI.java

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