8 COMPUTER PROGRAMMING

ARRAY,
CALLING METHOD and RETURN

CONTENTS

- **ARRAY**
  - ARRAY FORMAT
  - One DIMENSION ARRAY
  - Two DIMENSION ARRAY
- **CALLING METHOD AND RETURN**

ARRAY

- A DATA STRUCTURE for storing a same type of data
- A container object that holds a fixed number of values of a single type
- Dealing with array as object
  - Declaring an array object and then creating an object to it and use it

ARRAY

- **Declaring one dimension array and initializing it**
  - *type array-name[ ] ;*
  - *type[ ] array-name ;*
- **Declaring multiple dimension array and initializing it**
  - *type array-name[ ][ ];*
  - *type[ ][ ] array-name;*

ARRAY SUBSCRIPT

- One dimension array

Example 1 FOR ARRAY

- Print out days according to digit typed by users using FOR statement to the following.

```
1  class Array {
2    public static void main(String args[]) {
3      String weekly_days[] = new String[7];
4
5      weekly_days[0] = "월요일";
6      weekly_days[1] = "화요일";
7      weekly_days[2] = "수요일";
8      weekly_days[3] = "목요일";
9      weekly_days[4] = "금요일";
10     weekly_days[5] = "토요일";
11     weekly_days[6] = "일요일";
12
13   System.out.println("제일 좋아하는 요일은 " + weekly_days[5] + " 입니다.");
14    }
15 }
```

Example 2 FOR ARRAY

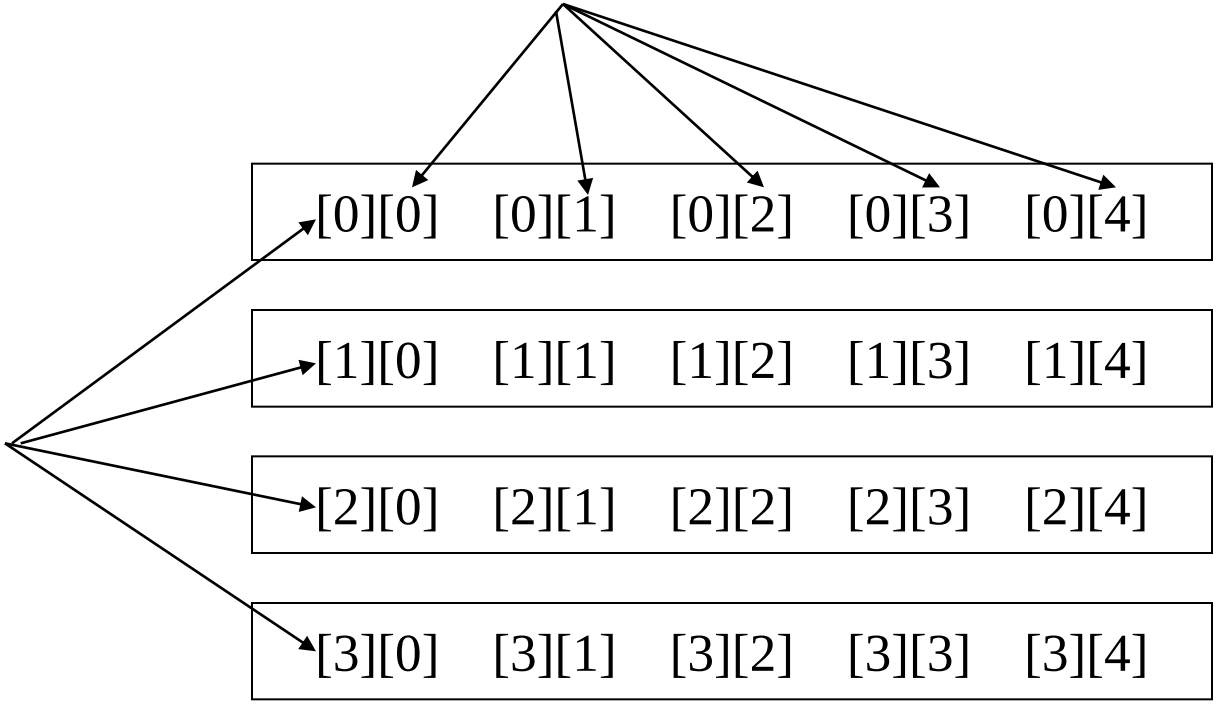
```
1 class AutoArray {
2   public static void main(String args[]) {
3   String weekly_days[] = {"월요일","화요일","수요일","목요일","금요일","토요일","일요일"};
4   System.out.println("제일 좋아하는 요일은 " + weekly_days[5] + " 입니다.");
5   }
6 }
```

ARRAY SUBSCRIPT

Two dimension array

Ex) two dimension array with 20 elements

int two_ dimension[ ][ ] = new int[4][5];



Example 3 FOR ARRAY

```
 1 class TwoArray {
 2   public static void main(String args[]) {
 3     int two_array[][]= new int[4][5];
 4     int i, j, k = 0;
 5
 6     for(i=0; i<4; i++)
 7       for(j=0; j<5; j++) {
 8         two_array[i][j] = k;
 9         k++;
10       }
11
12     for(i=0; i<4; i++) {
13       for(j=0; j<5; j++)
14         System.out.print(two_array[i][j] + " ");
15       System.out.println();
16     }
17   }
18 }
```

Example 4 FOR ARRAY

```
 1 class TwoDA {
 2   public static void main(String args[]) {
 3     int twoD[][] = new int[4][];
 4     twoD[0] = new int[1];
 5     twoD[1] = new int[2];
 6     twoD[2] = new int[3];
 7     twoD[3] = new int[4];
 8
 9     int i, j, k = 0;
10
11     for(i=0 ; i<4 ; i++)
12       for(j=0 ; j<i+1 ; j++) {
13         twoD[i][j] = k;
14         k++;
15       }
16
17     for(i=0 ; i<4 ; i++) {
18       for(j=0 ; j<i+1 ; j++)
19         System.out.print(twoD[i][j] + " ");
20       System.out.println();
21     }
22   }
23 }
```

DO PRACTICE

☐ Make a program to get an average after typing in 5 digits

- Example assigned an input data to a character
- Example changed an input string into an integer

Example 5 FOR ARRAY

```
 1 class TwoDA1{
 2     public static void main(String args[]){
 3         int twoDarray[][] = {
 4                 {12, 34, 56},
 5       {23, 45, 67, 89},
 6       {123, 456}
 7         };
 8        for (int i=0; i<3; i++)
 9         System.out.println("twoDarray[" + i + "]열의 길이는 " + twoDarray[i].length + "이다.");
10     }
11 }
```

Example 6 FOR ARRAY

```
1  class ThreeDA {
2    public static void main(String args[]) {
3      int threeD[][][] = new int[3][4][5];
4      int i, j, k;
5
6      for(i=0; i<3; i++)
7        for(j=0; j<4; j++)
8          for(k=0; k<5; k++)
9          threeD[i][j][k] = i;
10
11     for(i=0; i<3; i++) {
12       System.out.println((i+1) + "번째 2 차원 배열 ");
13       for(j=0; j<4; j++) {
14         for(k=0; k<5; k++)
15           System.out.print(threeD[i][j][k] + " ");
16         System.out.println();
17       }
18       System.out.println();
19     }
20   }
21 }
```

METHOD AND JAVA

Method

- A small program unit to handle commands for a specific function
- A method corresponds to a message that the object responds to

User defined method creation

- Users make and use methods directly
- Format

METHOD AND JAVA

case

```
class exMethod{

  static void call_func( ) {
     System.out.println(“ Hello World “);
  }

  public static void main(String args[ ]) {
     call_func( );
  }
}
```

How to pass on data to a method

- Calling method adding from 1 to 10

```
class exAddMethod{

  static int call_add_func( int n ) {
     int i;
     int sum = 0;
     for( i=1; i <= n; i++ )
     {     sum += i;    }

     System.out.println("호출된 메소드에서 1~" +
                                n + " 까지 합 : " + sum);
      return ( sum );
  }

  public static void main(String args[ ]) {
     int total = call_add_func( 10 );      // n = 10
일때
     System.out.println("Main 합계: "+ total);
  }
}
```

practice : How to pass on data to a method

- Making a program to get an average value from digit numbers that user types in

CONCLUDE

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