

CSSE 220 – Object-Oriented Software Development  
Rose-Hulman Institute of Technology

Worksheet 03

Name (Print): \_\_\_\_\_ Section: \_\_\_\_\_

**1. What is a 2D Array?**

A 2D array stores values in *rows and columns*.

Write one example of a 2D array: \_\_\_\_\_

**2. Two Dimensions**

- The first dimension [ ] represents : \_\_\_\_\_
- The second dimension [ ] represents: \_\_\_\_\_

**3. Declaring a 2D Array.** Complete the declaration of a 10x20 int array:

```
int[] [] arr = new int[____][ ____ ];
```

**4. Accessing Elements.** Given the 2D array:

```
int[] [] arr = {  
    {1, 2, 3},  
    {4, 5, 6}  
};
```

Fill in the expression to print the value 5:

```
System.out.println( arr[ ____ ][ ____ ] );
```

**5. 2D Array Lengths**

- `arr.length` = number of \_\_\_\_\_
- `arr[0].length` = number of \_\_\_\_\_

**6. Traversing a 2D Array.** Complete the nested loops used to print all values:

```
for (int r = 0; r < arr.____ ; r++) {  
    for (int c = 0; c < arr[r].____ ; c++) {  
        System.out.println( arr[ ____ ][ ____ ] );  
    }  
}
```

**7. What is a HashMap?**

A HashMap stores *key-value pairs*. Provide one real-world example from a key and a value pair: \_\_\_\_\_

**8. Core Rules (circle the correct statement)**

- Keys must be unique. (T / F)
- Values may repeat. (T / F)
- HashMap is an ordered collection. (T / F)

**9. Creating a HashMap.** Complete the examples shown in class:

```
HashMap<_____> airportMap = new HashMap<_____>();

HashMap<I_____> capitalCities = new HashMap<_____>();
```

**10. Common HashMap Operations.** Fill in the missing method names:

Put a value: map.\_\_\_\_\_(key, value);

Get a value: map.\_\_\_\_\_(key);

Check key: map.\_\_\_\_\_(key);

Remove entry: map.\_\_\_\_\_(key);

**11. Iterating Through a HashMap.**

```
// Loop over keys and print values:
for (String k : map._____) {
    System.out.println( k + " → " + map.get(_____) );
}
```

**12. How to Check if a Key Exists.** Complete the example shown in lecture:

```
// Does the map contain the key "Spain"?
if (capCity._____("Spain")) { }
```

**13. Before You Leave**

Write one question you want reviewed next class:

\_\_\_\_\_