

CSC-210: Some Final Thoughts

Additional concepts: *for-each* loop

```
int arr[] = {17,6,4,9};
```

```
// output all elements (standard way)
System.out.println("elements of array: ");
for (int i = 0; i < arr.length; i++) {
    System.out.println(arr[i]);
}
```

```
// for each method
System.out.println("elements of array: ");
for (int a : arr) {
    System.out.println(a);
}
```

Additional concepts: *switch statement*

```
// user is asked whether to play again
switch (userInput) {
    case 'y': case 'Y':
        System.out.println("You entered: Yes");
        break;
    case 'n': case 'N':
        System.out.println("You entered: No");
        break;
    default:
        System.out.println("Invalid character");
}
```

```
// user is asked whether to play again

if (userInput == 'y' || userInput == 'Y') {
    System.out.println("You entered: Yes");
} else if (userInput == 'n' || userInput == 'N') {
    System.out.println("You entered: No");
} else {
    System.out.println("Invalid character");
}
```

The switch variable is compared to each *case*. When a matching case is found, all statements are executed until one of the following:

- a *break* statement
- a *default* clause
- the end of the switch statement

Programming **concepts** apply in *most* languages

- Input/Output
- Variable declaration and initialization
 - `int x = 4;`
 - `int [] arr = {1,2,3};`
- Flow of control
 - *if* statements, *switch* statements
 - Loops: *for* loops, *while* loops, *do..while* loops
- Methods (or functions)
- Comments

Add all numbers between 1 - 10

Precondition:

– None (the code below is ready to run)

- $\text{sum} \leftarrow 0$ (set sum to 0)
- For each integer i from 1, ...10,
 $\text{sum} \leftarrow \text{sum} + i$ (add the integer to the sum)
- Output the sum

Postcondition:

- The sum is equal to the sum of the integers 1 - 10

Program: Add all numbers between 1 and 10 in **Java**

```
public class sumClass {
```

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

```
        // this is a comment
```

```
        int sum = 0;
```

```
        for (int i = 1; i <= 10; i++) {
```

```
            sum = sum + i;
```

```
        }
```

```
        System.out.println("The sum is " + sum);
```

```
    }
```

```
}
```

Algorithm:

$sum \leftarrow 0$ (set sum to 0)

For each integer i from 1, ...10,

$sum \leftarrow sum + i$

Output the sum

Program: Add all numbers between 1 and 10 in C++

```
#include <iostream>
using namespace std;
int main () {
    // this is a comment
    int sum = 0;
    for (int i = 1; i <= 10; i++) {
        sum = sum + i;
    }
    cout << "The sum is " << sum << endl;
    return 0;
}
```

Algorithm:

sum \leftarrow 0 (set sum to 0)

For each integer i from 1, ...10,
sum \leftarrow sum + i

Output the sum

Program: Add all numbers between 1 and 10 in **Python**

```
# this is a comment
sum = 0;
for i in range(1,11) :
    sum = sum + i

print ("The sum is", sum)
```

Algorithm:

$sum \leftarrow 0$ (set sum to 0)

For each integer i from 1, ...10,
 $sum \leftarrow sum + i$

Output the sum