

Functions

- Used to perform generalizable and repeatable tasks

```
void printTemp(int temp)
{
    println("The temperature is a balmy " + temp + " F");
}

printTemp(35);
printTemp(85);
printTemp(120);
```

Output:

```
The temperature is a balmy 35 F
The temperature is a balmy 85 F
The temperature is a balmy 120 F
```

Functions

- Invoking a function with a variable

```
int temperature = 35;  
printTemp(temperature);  
temperature = 85;  
printTemp(temperature);
```

Output:

```
The temperature is a balmy 35 F  
The temperature is a balmy 85 F
```

Functions

- ❑ Major benefit of defining functions is the flexibility
- ❑ Suppose you decide to display the temperature in **Celsius instead of Fahrenheit**
- ❑ Without functions, you would have to change every line that displays the temperature in Fahrenheit

```
void printTemp(int temp)
{
    int celsius = (temp - 32) * 5/9;
    println("The temperature in celsius is " + celsius);
}
```

Functions

- Now when you invoke

```
printTemp (35) ;  
printTemp (85) ;  
printTemp (120) ;
```

- The output is

```
The temperature in celsius is 1  
The temperature in celsius is 29  
The temperature in celsius is 48
```

Functions example - Calculator

- ❑ Writing a program for a simple calculator (+-*/)
- ❑ You need functions for addition, subtraction, division and multiplication
- ❑ You can then provide two numbers to the appropriate function and it will compute and display the result

```
add(int a, int b)
{
    int c = a + b;
    println("The result of addition is " + c);
}
```

Functions exercise - 2 minutes

- ❑ Write a function that accepts two integers and displays the value of their product
- ❑ Use the add function below for reference
- ❑ Discuss your solution with your neighbor

```
add(int a, int b)
{
    int c = a + b;
    println("The result of addition is " + c);
}
```



Built-in Functions - Processing

- ❑ `line(x1, y1, x2, y2)` – draws a line
- ❑ `println(message)` – prints a message to the screen
- ❑ `ellipse(centerX, centerY, xradius, yradius)` - draws an ellipse on the screen with specified parameters
- ❑ `stroke(255, 0, 0)` // Set the Line Color to Red
- ❑ and many more...