

Week 5a

Methods

- Function methods
- void methods

Methods A

```
public class SquareWithMethodsA {  
  
    public static int findArea(int length) {  
        return length*length;  
    }  
  
    public static int findPerimeter(int length) {  
        return length*4;  
    }  
  
    public static void main(String args[]) {  
        int length;  
        int area;  
        int perimeter;  
        Scanner s = new Scanner(System.in);  
  
        System.out.print("Enter the length of a side of a square: ");  
        length = s.nextInt();  
        area = findArea(length);  
        perimeter = findPerimeter(length);  
        System.out.printf("The perimeter of the square is %d.\n", perimeter);  
        System.out.printf("The area of the square is %d.\n", area);  
    }  
}
```

Methods B

```
public class SquareWithMethodsB {  
    public static int getLength(Scanner s) {  
        int length;  
        System.out.print("Enter the length of a side of a square: ");  
        length = s.nextInt();  
        while (length <= 0) {  
            System.out.println("Error: the length must be greater than zero.");  
            System.out.print("Enter the length of a side of a square: ");  
            length = s.nextInt();  
        }  
        return length;  
    }  
}
```

Methods B

```
public static int findArea(int length) {  
    return length*length;  
}
```

```
public static int findPerimeter(int length) {  
    return length*4;  
}
```

```
public static void main(String args[]) {  
    int length;  
    int area;  
    int perimeter;  
    Scanner s = new Scanner(System.in);  
  
    length = getLength(s);  
    area = findArea(length);  
    perimeter = findPerimeter(length);  
    System.out.printf("The perimeter of the square is %d.\n", perimeter);  
    System.out.printf("The area of the square is %d.\n", area);  
}  
}
```

Methods C

```
public class SquareWithMethodsC {  
    public static int getLength(Scanner s) {  
        int length;  
        System.out.print("Enter the length of a side of a square: ");  
        length = s.nextInt();  
        while (length <= 0) {  
            System.out.println("Error: the length must be greater than zero.");  
            System.out.print("Enter the length of a side of a square: ");  
            length = s.nextInt();  
        }  
        return length;  
    }  
}
```

Methods C

```
public static int findArea(int length) {
    return length*length;
}
public static int findPerimeter(int length) {
    return length*4;
}

public static void printAreaAndPerimeter(int area, int perimeter) {
    System.out.printf("The perimeter of the square is %d.\n", perimeter);
    System.out.printf("The area of the square is %d.\n", area);
}

public static void main(String args[]) {
    int length;
    int area;
    int perimeter;
    Scanner s = new Scanner(System.in);

    length = getLength(s);
    area = findArea(length);
    perimeter = findPerimeter(length);
    printAreaAndPerimeter(area, perimeter);
}
}
```

Methods D

```
public class SquareWithMethodsD {  
    public static boolean isInt(String str){  
        int i = 0;  
  
        while (i < str.length() && str.charAt(i) != ' ') {  
            if (str.charAt(i) < '0' || str.charAt(i) > '9') {  
                return false;  
            }  
            i = i + 1;  
        }  
        return true;  
    }  
}
```

```
public static int parseInt(String str) {  
    int i = 0;  
    int num = 0;  
    while (i < str.length() ) {  
        num = num*10 + (str.charAt(i) - '0');  
        i = i + 1;  
    }  
    return num;  
}
```


Methods D

```
public static int getInt(Scanner s, String prompt) {  
    String str;  
    System.out.print(prompt);  
    str = s.nextLine();  
    while (!isInt(str)) {  
        System.out.println("Error: Illegal int");  
        System.out.print(prompt);  
        str = s.nextLine();  
    }  
    return parseInt(str);  
}
```

```
public static int getLength(Scanner s) {  
    int length;  
    String str;  
    length = getInt(s, "Enter the length of a side of a square: ");  
    while (length <= 0) {  
        System.out.println("Error: the length must be greater than zero.");  
        length = getInt(s, "Enter the length of a side of a square: ");  
    }  
    return length;  
}
```

Methods D

```
public static int findArea(int length) {  
    return length*length;  
}  
public static int findPerimeter(int length) {  
    return length*4;  
}  
public static void printAreaAndPerimeter(int area, int perimeter) {  
    System.out.printf("The perimeter of the square is %d.\n", perimeter);  
    System.out.printf("The area of the square is %d.\n", area);  
}
```

```
public static void main(String args[]) {  
    int length;  
    int area;  
    int perimeter;  
    Scanner s = new Scanner(System.in);  
  
    length = getLength(s);  
    area = findArea(length);  
    perimeter = findPerimeter(length);  
    printAreaAndPerimeter(area, perimeter);  
}  
}
```