

# Design and Analysis of Algorithms

## L02: Overview Java Basics & Programming

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# Resources

- <https://introcs.cs.princeton.edu/java/11hello/>

# Programming Errors

- First programming goal: Identify errors
- Compile time errors
  - Easy to detect and fix
  - Don't ignore the warnings (can be more harmful)
- Runtime errors
  - Occurs when program runs (invoked)
  - Program performs an invalid operation, e.g.
    - Divide by zero
    - Accessing invalid memory location
    - Permissions violations etc.
- Logical errors
  - Most difficult to debug
  - Existence known when output is incorrect

# HelloWorld.java

```
public class HelloWorld {  
    public static void main(String[] args) {  
        // Displays "Hello, World".  
        // First intro java program  
        System.out.println("Hello, World!");  
    }  
}
```

# Exercise 1

- Write a program `Initials.java` to print your initials using 9 rows with corresponding initial letter, e.g.

**RRRRRR**

**RR      RR**

**RR          RRR**

**RR          RRR**

**RR      RR**

**RRRRRR**

**RR      RR**

**RR          RR**

**RR              RR**

**PPPPPP**

**PP      PP**

**PP          PPP**

**PP          PPP**

**PP      PP**

**PPPPPP**

**PP**

**PP**

**PP**

**RRRRRR**

**RR      RR**

**RR          RRR**

**RR          RRR**

**RR      RR**

**RRRRRR**

**RR      RR**

**RR          RR**

**RR              RR**

# Initials.java (RPR) - v1

```
public class Initials {  
    public static void main(String[] args) {  
        System.out.println("RRRRR      PPPPP      RRRRR ");  
        System.out.println("RR      RR      PP      PP      RR      RR");  
        System.out.println("RR      RRR      PP      PPP      RR      RRR ");  
        System.out.println("RR      RRR      PP      PPP      RR      RRR ");  
        System.out.println("RR      RR      PP      PP      RR      RR ");  
        System.out.println("RRRRR      PPPPP      RRRRR ");  
        System.out.println("RR      RR      PP      RR      RR");  
        System.out.println("RR      RR      PP      RR      RR");  
        System.out.println("RR      RR      PP      RR      RR");  
    }  
}
```

# Initials.java (RPR) v2

```
public class Initials {  
    public static void main(String[] args) {  
        System.out.println("RRRRR      PPPPP      RRRRR      ");  
        System.out.println("RR      RR      PP      PP      RR      RR      ");  
        System.out.println("RR      RRR      PP      PPP      RR      RRR      ");  
        System.out.println("RR      RRR      PP      PPP      RR      RRR      ");  
        System.out.println("RR      RR      PP      PP      RR      RR      ");  
        System.out.println("RRRRR      PPPPP      RRRRR      ");  
        System.out.println("RR      RR      PP      RR      RR      RR      ");  
        System.out.println("RR      RR      PP      RR      RR      RR      ");  
        System.out.println("RR      RR      PP      RR      RR      RR      ");  
    }  
}
```

# Prog Exercise (Home)

- P1: Write the program that output your initials in the nine rows using the same letter
- P2: Write the program that takes initials as input (command line argument) and outputs them in the nine rows using the same letter e.g.

```
java Initials RPR
```



# Basic Java Quiz

- Answer the set of 25 questions on basics of java.
  - Quiz-01.pdf
- Answers to Quiz-01.