

1.03 JavaPattern.java

Write a program that displays the word JAVA similar to the pattern below

Sample Execution

```
      J      A      V      V      A
      J      A A      V      V      A A
J      J      AAAAA      V      V      AAAAA
J      J      A      A      V V      A      A
      JJJJ      A      A      V      A      A
```

1.04 Table.java

Write a program that displays an exponents table. “\t” or printf using %6s and %6d for Strings and integers may be useful.

Sample Execution

x	x^2	x^3
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216

1.05 HiBye.java

Write a program HiBye.java that takes two names as command-line arguments and prints hello and goodbye messages as shown below (with the names for the hello message in the same order as the command-line arguments and with the names for the goodbye message in reverse order). This can be run from the command prompt or finding out how to pass command-line arguments to the IDE. Either way you might need to google how to do this and how to access the args array from the main method.

Sample Execution

```
Hello Alan and Turing.
Goodbye Turing and Alan.
```

1.06 Reverse.java

Write a program that takes 4 command-line arguments and prints them in reverse order.

```
javac Reverse.java
```

```
java Reverse A B C D
```

Sample Execution

```
D C B A
```

1.07 AverageMPH.java

I ride my motorcycle 81 kilometers in 40 minutes and 20 seconds. Given that 1 mile is 1.6 kilometers, write a program that calculates the average speed in miles per hour. Be sure to use real numbers because Java performs truncation when dividing 2 integers. $7 / 4$ mathematically is 1.75 but Java truncates or rounds down to 1. Alternatively, $7.0 / 4.0$ is 1.75.

Sample Execution

```
75.3099173553719 mph
```

1.08 Pi.java

Write a program that calculates π . Use the following formula and stop when you reach $1/21$.

$$\pi = 4 * (1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \dots)$$

Sample Execution

```
3.232315809405594
```

1.09 Dialog.java

Write a program that says "Hello World!" using a graphical interface. Prior to your class add `import javax.swing.JOptionPane;` Inside of main add the line of code below.

```
JOptionPane.showMessageDialog(null, "Hello, World!");
```

Sample Execution



1.10 TerminalColors.java

Write a program that outputs text in color to the terminal. Add the options below to your class(not inside main or you'll have to remove the *public static*).

```
public static final String ANSI_RESET = "\u001B[0m";
public static final String ANSI_BLACK = "\u001B[30m";
public static final String ANSI_RED = "\u001B[31m";
public static final String ANSI_GREEN = "\u001B[32m";
public static final String ANSI_YELLOW = "\u001B[33m";
public static final String ANSI_BLUE = "\u001B[34m";
public static final String ANSI_PURPLE = "\u001B[35m";
public static final String ANSI_CYAN = "\u001B[36m";
public static final String ANSI_WHITE = "\u001B[37m";
public static final String ANSI_BLACK_BACKGROUND = "\u001B[40m";
public static final String ANSI_RED_BACKGROUND = "\u001B[41m";
public static final String ANSI_GREEN_BACKGROUND = "\u001B[42m";
public static final String ANSI_YELLOW_BACKGROUND = "\u001B[43m";
public static final String ANSI_BLUE_BACKGROUND = "\u001B[44m";
public static final String ANSI_PURPLE_BACKGROUND = "\u001B[45m";
public static final String ANSI_CYAN_BACKGROUND = "\u001B[46m";
public static final String ANSI_WHITE_BACKGROUND = "\u001B[47m";
```

```
System.out.println(ANSI_RED + "This text is red!" + ANSI_RESET);
```

```
System.out.println(ANSI_GREEN_BACKGROUND + "This text has a green background but  
default text!" + ANSI_RESET);
```

```
System.out.println(ANSI_YELLOW + "This text has yellow text but a default background!" +  
ANSI_RESET);
```

```
System.out.println(ANSI_CYAN_BACKGROUND + ANSI_RED + "This text has a cyan  
background and red text!" + ANSI_RESET);
```

Sample Execution

```
This text is red!
This text has a green background but default text!
This text has yellow text but a default background!
This text has a cyan background and red text!
```