

CSE142 Midterm Key
Summer 2018

1.	Expression	Value
	$3 + 4 * (2 + 1) / 5 - 1 + 5$	9
	$205 / 10 * 1.0 + 6.0 / 4 - 8 / 3$	19.5
	$3 * 2 + 1 + "3 * 2" + 1 + (3 * 2 + 1)$	"73 * 217"
	$5 \% 4 + (9 + 1) / 2 \% 3 * 1.0$	3.0
	$9 * (9 + 9) / 9 - 9 \% 9 + 9 / 9$	19

2. The program produces the following output:

```
john and paul with ringo
drums and george with pete
john and john with yoko
bass and drums with john
```

3.	Method Call	Output Produced
	<code>ifElseMystery(2, 8);</code>	7 8
	<code>ifElseMystery(6, 10);</code>	10 5
	<code>ifElseMystery(2, 7);</code>	7 2
	<code>ifElseMystery(12, 9);</code>	15 5
	<code>ifElseMystery(7, 7);</code>	10 3
	<code>ifElseMystery(4, 5);</code>	8 1

4.	Method Call	Return Value
	<code>mystery(3);</code>	2
	<code>mystery(4);</code>	3
	<code>mystery(-1);</code>	1
	<code>mystery(6);</code>	8
	<code>mystery(0);</code>	1
	<code>mystery(2);</code>	1

5.	$x > y$	$z > 0$	$y \% 2 == 0$
Point A	sometimes	never	never
Point B	always	sometimes	sometimes
Point C	sometimes	always	sometimes
Point D	sometimes	always	always
Point E	never	sometimes	sometimes

6. One possible solution is shown below:

```
public static int longWords(Scanner input, int numWords) {
    System.out.print("Next word? ");
    String word = input.next();

    String longest = word;
    int totalChars = word.length();

    for (int i = 1; i < numWords; i++) {
        System.out.println((numWords - i) + " more words...");
        System.out.print("Next word? ");
        word = input.next();

        totalChars += word.length();
        if (word.length() > longest.length()) {
            longest = word;
        }
    }
    System.out.println("Longest word: " + longest);

    return totalChars;
}
```

7. Two possible solutions are shown below:

```
public static void diceWar(int max, int target) {
    Random r = new Random();
    int count1 = 0;
    int count2 = 0;
    int round = 1;

    System.out.println("Rolling a " + max + "-sided die, need " + target + " to score...");
    while (round < 3 || count1 == count2) {
        System.out.println("Round " + round + ":");

        int roll1 = r.nextInt(max) + 1;
        int roll2 = r.nextInt(max) + 1;

        System.out.print("    Player 1 rolled: " + roll1);
        if (roll1 >= target) {
            System.out.print(" - POINT!");
            count1++;
        }
        System.out.println();

        System.out.print("    Player 2 rolled: " + roll2);
        if (roll2 >= target) {
            System.out.print(" - POINT!");
            count2++;
        }
        round++;
        System.out.println();
    }

    System.out.println("Final score - Player 1: " + count1 + ", Player 2: " + count2);
    if (count1 > count2) {
        System.out.println("Player 1 wins!");
    } else {
        System.out.println("Player 2 wins!");
    }
}
```

```

public static void diceWar2(int max, int target) {
    Random r = new Random();
    int count1 = 0;
    int count2 = 0;
    int round = 1;

    System.out.println("Rolling a " + max + "-sided die, need " + target + " to score...");
    for (int i = 0; i < 3; i++) {
        System.out.println("Round " + round + ":");

        int roll1 = r.nextInt(max) + 1;
        int roll2 = r.nextInt(max) + 1;

        System.out.print("    Player 1 rolled: " + roll1);
        if (roll1 >= target) {
            System.out.print(" - POINT!");
            count1++;
        }
        System.out.println();

        System.out.print("    Player 2 rolled: " + roll2);
        if (roll2 >= target) {
            System.out.print(" - POINT!");
            count2++;
        }
        round++;
        System.out.println();
    }

    while (count1 == count2) {
        System.out.println("Round " + round + ":");

        int roll1 = r.nextInt(sides) + 1;
        int roll2 = r.nextInt(sides) + 1;

        System.out.print("    Player 1 rolled: " + roll1);
        if (roll1 >= target) {
            System.out.print(" - POINT!");
            count1++;
        }
        System.out.println();

        System.out.print("    Player 2 rolled: " + roll2);
        if (roll2 >= target) {
            System.out.print(" - POINT!");
            count2++;
        }
        round++;
        System.out.println();
    }

    System.out.println("Final score - Player 1: " + count1 + ", Player 2: " + count2);
    if (count1 > count2) {
        System.out.println("Player 1 wins!");
    } else {
        System.out.println("Player 2 wins!");
    }
}

```

8. Three possible solutions are shown below:

```
public static int countWords(String s) {
    int count = 0;
    boolean inWord = false;
    for (int i = 0; i < s.length(); i++) {
        if (s.charAt(i) == ' ') {
            inWord = false;
        } else if (!inWord) {
            count++;
            inWord = true;
        }
    }
    return count;
}
}
```

```
public static int countWords(String s) {
    int count = 0;
    for (int i = 1; i < s.length(); i++) {
        if (s.charAt(i - 1) == ' ' && s.charAt(i) != ' ') {
            count++;
        }
    }
    if (s.length() > 0 && s.charAt(0) != ' ') {
        count++;
    }
    return count;
}
}
```

```
public static int countWords(String s) {
    int count = 0;
    int i = 0;
    while (i < s.length()) {
        while (i < s.length() && s.charAt(i) == ' ') {
            i++;
        }
        if (i < s.length()) {
            count++;
            while (i < s.length() && s.charAt(i) != ' ') {
                i++;
            }
        }
    }
    return count;
}
}
```