

Some Midterm Practice Problems

September, 2024

1. 1 point `word_count` is a legal identifier in Java. A. True B. False
2. 1 point `k2` is a legal identifier in Java. A. True B. False
3. 1 point `Krazy1` is a legal identifier in Java. A. True B. False
4. 1 point `hot?` is a legal identifier in Java. A. True B. False
5. 1 point `2ndPlaceWinner` is a legal identifier in Java. A. True B. False
6. 1 point `2be0rNot2Be` is a legal identifier in Java. A. True B. False
7. 1 point `cous-cous` is a legal identifier in Java. A. True B. False
8. 1 point It's legal to have an integer variable named `x` and another integer variable named `X` in the same program. A. True B. False
9. 1 point How much is a kilobyte?
 - A. 10^3 bytes
 - B. 10^6 bytes
 - C. 10^9 bytes
 - D. 10^{12} bytes
 - E. 10^{15} bytes
10. 1 point How much is a megabyte?
 - A. 10^3 bytes
 - B. 10^6 bytes
 - C. 10^9 bytes
 - D. 10^{12} bytes
 - E. 10^{15} bytes

11. How much is a gigabyte?
- A. 10^3 bytes
 - B. 10^6 bytes
 - C. 10^9 bytes
 - D. 10^{12} bytes
 - E. 10^{15} bytes
12. How much is a terabyte?
- A. 10^3 bytes
 - B. 10^6 bytes
 - C. 10^9 bytes
 - D. 10^{12} bytes
 - E. 10^{15} bytes
13. How long is a millisecond
- A. 10^{-3} seconds
 - B. 10^{-6} seconds
 - C. 10^{-9} seconds
 - D. 10^{-12} seconds
 - E. 10^{-15} seconds
14. How long is a microsecond
- A. 10^{-3} seconds
 - B. 10^{-6} seconds
 - C. 10^{-9} seconds
 - D. 10^{-12} seconds
 - E. 10^{-15} seconds
15. How long is a nanosecond
- A. 10^{-3} seconds
 - B. 10^{-6} seconds
 - C. 10^{-9} seconds
 - D. 10^{-12} seconds
 - E. 10^{-15} seconds

16. What is the result of:

```
int x=10, y=20;
boolean isBored=true;
```

```
if (isBored) {
    int z = x+y;
} else {
    z = x-y;
}
System.out.println(z);
```

- A. prints 30
- B. prints -10
- C. compiler error: illegal declaration of `isBored`
- D. compiler error: can't find symbol `z`

17. The most important job of the Java compiler is to

18. In what component of your computer is most of the *computation* done?

19. What is the type of the expression: `true`

20. What is the type of the expression: `'1'`

21. What is the type of the expression: `23.2`

22. What is the type of the expression: `32 + 2`

23. What is the type of the expression: `"32"+2`

24. What is the result of the expression: `52482/24478198`
25. What is the result of the expression: `(true || (3 == 2))`
26. What is the result of the expression: `!(false)`
27. What is the result of the expression: `!(4 < 2) && 3 < 10`
28. What is the result of the expression: `2/5 != 2/5.0`
29. What is the result of the expression: `!((true || 3 < 2) && !(false || true))`
30. What is the result of the expression: `18 % 5 * 10+3 * 4 / 2`
31. What is the result of the expression: `2 % 5 * 4+3 * 5/2`
32. What is the result of the expression: `"Scholes" + 6*3`
33. What is the result of the expression: `0 * (1264 + 2835) - 1.0`

34. What is the result of the expression: "Scholes" + 2+2
35. What is the result of the expression: 5+3%6/2+8*5/3
36. What is the result of the expression: 3 > 3%5 + 2||5 < 7&&1 < 2
37. What is the result of the expression: 3 > 3%5 + 2&&5 < 7&&1 > 2%2
38. What is the result of the expression:
2+1+"."+(3/4)+3*4
39. What is the result of the expression:
"1"+5/2+3%4*5+(6+7)
40. What is the result of the expression:
"ascend".charAt(1) + "acknowledge".substring(3,6)
41. What is most appropriate Java data type to store the number of points scored by the Eagles during the Super Bowl

42. What is most appropriate Java data type to store the number of days left in the semester

43. What is most appropriate Java data type to store your name

44. 1 point What is most appropriate Java data type to store your height in meters or yards
-
45. 1 point What is most appropriate Java data type to store whether or not it's hot right now
-
46. 1 point What is most appropriate Java data type to store your middle initial
-
47. 1 point Turn into a Java expression the statement " x is a multiple of y "
-
48. 1 point Write an if/else statement that prints "in the black" if `revenue` is the same or higher than `expenses`, otherwise print out "in the red."

49. 1 point We have two integers: x and y . Write an if statement that checks if one of them is even and the other is odd.

50. 1 point What is the output of the following code:

```
for(int i = 0; i<10; i++) {  
    if (i%3 == 1) {  
        System.out.print(i);  
    }  
}
```

51. 1 point What is the output of this code?

```
for(int i = 0; i<3 ; i++) {
    for(int j =0; j <= i; j++) {
        System.out.print(i + j);
        System.out.print(" "); // print a space
    }
    System.out.println();
}
```

52. 1 point What is the output of this code?

```
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```


53. 1 point What is the output of this code?

```
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```

54. 1 point What is the output of this code?

```
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            if (z>=30 || z<=30) {
                System.out.print("(not Quincy) ");
            }
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```

55. 1 point What is the output of this code?

```
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            if (x==10) {
                System.out.println("Madison");
            }
        }
    }
}
```

```

        } else {
            System.out.println("Monroe");
        }
    }
}

```

56. 1 point What is the value of a, b, and c when the following code finishes?

```

int a=5, b=3, c=2;

if (c < a) {
    c-=a;
} else if (b < a) {
    b-=a;
}
if (a + b > c) {
    a+=10;
} else {
    b+=10;
}

```

57. 1 point What is the value of a, b, and c when the following code finishes?

```

int a=1, b=2, c=3;

if (a * 2 < b) {
    a*=3;
    c-=b;
}
if (b < a) {
    b++;
} else {
    a--;
    c++;
}

```

58. 1 point What is printed by the following?

```

for (int i=1; i<4; i++) {
    for (char c='a'; c<='c'; c++) {
        if (i%2==0) {
            i++;
            System.out.println(i + " " + c);
        } else {
            c++;
            System.out.println(c + " " + i);
        }
    }
}

```

59. 1 point What is printed by the following?

```
String s1="bob";
String s2="lob";
String s3="law";

for (int i=0; i<4; i++) {
    if (i%2==0) {
        s1+=s2;
    } else {
        s2=s1+s3;
    }
}
System.out.println(s1);
```

60. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted1 {
2     public static void func(int x) {
3         x++;
4     }
5
6     public static void main(String args[]) {
7         int y=10;
8
9         func(y);
10        System.out.println(y);
11    }
12 }
```

61. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted2 {
2     public static void func(int x) {
3         x++;
4         System.out.println(x);
5     }
6
7     public static void main(String args[]) {
8         int y=10;
9
10        func(y);
11    }
12 }
```

62. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted3 {
2     public static void func(int x, int y, int z) {
3         x++;
4         y+=z%2;
5         z*=2;
6     }
7
8     public static void main(String args[]) {
9         int x=10, y=20, z=30;
10
11        func(y, z, x);
12        System.out.println(x);
13    }
14 }
15
```

63. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted4 {
2     public static void func(int x, int y, int z) {
3         x++;
4         y+=z%2;
5         z*=2;
6         System.out.println(z);
7     }
8
9     public static void main(String args[]) {
10        int x=10, y=20, z=30;
11
12        func(y, z, x);
13    }
14 }
15
```

64. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted5 {
2     public static int func(int x) {
3         x*=2;
4         return x;
5     }
6
7     public static void main(String args[]) {
8         int x=10;
9
10        func(x);
11        System.out.println(x);
12    }
13 }
```

65. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted6 {
2     public static int func(int x) {
3         x*=2;
4         return x;
5     }
6
7     public static void main(String args[]) {
8         int x=10;
9
10        x=func(x);
11        System.out.println(x);
12    }
13 }
```

66. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted7 {
2     public static void func(String base, String prefix, String suffix) {
3         base = prefix+base+suffix;
4     }
5
6     public static void main(String args[]) {
7         String r="ject";
8         String p="con";
9         String s="ure";
10
11        func(r, p, s);
12        System.out.println(r);
13    }
14 }
15
```

67. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted8 {
2     public static String func(String base, String prefix, String suffix) {
3         base = prefix+base+suffix;
4         return base;
5     }
6
7     public static void main(String args[]) {
8         String r="ject";
9         String p="con";
10        String s="ure";
11
12        func(r, p, s);
13        System.out.println(r);
14    }
15 }
16
```

68. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted9 {
2     public static String func(String base, String prefix, String suffix) {
3         base = prefix+base+suffix;
4         return base;
5     }
6
7     public static void main(String args[]) {
8         String r="ject";
9         String p="con";
10        String s="ure";
11
12        r=func(r, p, s);
13        System.out.println(r);
14    }
15 }
16
```

69. 1 point Is there a compiler error in this code? If so, what is it? If not, what's printed?

```
1 public class WhatsPrinted10 {
2     public static void f1() {
3         System.out.print("a");
4     }
5
6     public static void f2() {
7         f1();
8         System.out.print("b");
9     }
10
11    public static void f3() {
12        f2();
13        f1();
14        System.out.print("c");
15    }
16
17    public static void main(String args[]) {
18        f3();
19        System.out.println();
20    }
21 }
22
```

70. 3 points Write the few lines of code that prints the first 50 perfect squares (1, 4, 9, 16, 25, 36, ...). You do not need to write a full program (*i.e.*, there's no need for `public class ...` or `public static void main ...`).

71. 1 point In the main function provided, write a program that asks the user to input two integers and prints out the first integer raised to the second (*e.g.* if the user enters 2 and 4, the program prints 16, which is 2^4). You do not have to write any imports or `public class ...`. Please just fill in `main`.

```
public static void main(String args[]) {
```

72. 1 point Write the few lines of code that print all of the integers between 5 and 1000 that are divisible by 6.

73. 1 point Write a java program which asks the user to enter three integers. The program prints "between" if the 2nd number falls in between the 1st and 3rd, and "not between" if it doesn't. For example, if I enter 1 10 27, the program prints "between", and if I enter 5 9 6, the program prints "not between".
74. 1 point Write the few lines of code that prompts the user to enter a series of exam scores, stopping when the user has entered an exam score < 0 . The program then prints the highest, lowest, and average score or `no scores` if no scores have been entered.
75. 1 point Write the few lines of code that prompts the user to enter a series of exam scores, stopping when the user has entered an exam score < 0 . The program then prints average passing score, where passing is any grade ≥ 70 . It should also print appropriate messages if no scores were entered or if scores were entered but none were passing.
76. 1 point Write the few lines of code that prompts the user to enter a series of words, stopping when the user has entered the word "quit". The program should then print the length of the longest word entered or "no words entered" if no words other than "quit" were entered.
77. 1 point Write a static method named `twoConsecutive` that accepts three integers as parameters and returns `true` if there is at least one pair of integers that differ by exactly 1. For example, the integers 3 and 4 differ by 1. The integers 12 and 11 also differ by 1.

Your method should return false if there are no such consecutive values. The integers could be passed in any order; the two consecutive values could be any of the two values passed in.

Here are some sample calls:

Call	Output
<code>twoConsecutive(1, 2, 12)</code>	<code>true</code>
<code>twoConsecutive(1, 12, 2)</code>	<code>true</code>
<code>twoConsecutive(2, 12, 1)</code>	<code>true</code>
<code>twoConsecutive(4, 5, 3)</code>	<code>true</code>
<code>twoConsecutive(2, 4, 6)</code>	<code>false</code>
<code>twoConsecutive(8, 8, 8)</code>	<code>false</code>

78. Write a method which is passed a `String`. The method returns the number of vowels it contains.
79. Write a method which is passed a `String`. The method returns a new `String` which is the same as the original, except that with every letter repeated. For example, if the method is passed the `String` "mayo", the method returns the string "mmaayyoo".
80. Write a method which is passed a `String`. The method returns `true` if the word contains three consecutive letters in the alphabet. For example, `synopsis`, has three consecutive letters in the alphabet because of `n`, `o`, and `p`. `overstep` would also return true because of `r`, `s`, and `t`.
81. Write a method which is passed the name of a text file. The method returns the number of words which contain three consecutive letters in the alphabet. You may assume that your answer to question 80 is correct. You are not required to handle `FileNotFoundException`.
82. Write a method which is passed the name of a text file. The method returns the number of characters found in the file. You are not required to handle `FileNotFoundException`.
83. Write a method which is passed the name of a text file. The method returns the number of words found in the file. You are not required to handle `FileNotFoundException`.
84. Write a method which is passed the name of a text file. The method returns the length of the longest word found in the file. You are not required to handle `FileNotFoundException`.

85. Write a method which is passed the name of a text file which contains grades in a course that's in the following format:

```
Stan 99 87 100
Dipper 100 100 97 100
Mabel 100 100
Seuss 72 85 65
```

the method returns the average of the student with the highest semester average.

86. Write a method which is passed the name of a text file. The method returns the number of blank lines contained in the file. You are not required to handle `FileNotFoundException`.