CS 150 – Fall 17
Exam 2 Prep

printf

Print the pre-defined variable **d** with 3 decimal places.

```
System.out.printf("%.3f\n", d);
```

Print the following predefined variables using **printf**, all on the same line, separated by ampersands (&), ending with a new line.

double d (with 6 decimal accuracy)
char c
string s
double d1 (with 2 decimal accuracy)

```
System.out.printf("%f&%c&%s&%.2f\n", d, c, s, d1);
```

What do the following lines print?

```
System.out.printf("%.2f\n", 3.1415);
System.out.printf("%.3f\n", 3.1415);
System.out.printf("%f\n", 3.1);
System.out.printf("%.4f\n", 3.1);
System.out.printf("%.5f\n",  (double)3);
System.out.printf("%.5f\n", 3);
```

3.14
3.142
3.100000
3.1000
3.00000
Illegal Formatting Exception

Strings

Initialize a String variable called **s** to have the value "CS150".

String s = "CS150";

OR

String s = new String ("CS150");

Print the 3rd character in **s**.

```
System.out.println(s.charAt(2));
```

Print the 1st through the 3rd characters in **s**.

```java
System.out.println(s.substring(0,3));
```

Print the length of the String **s**.

```
System.out.println(s.length());
```

Name the four errors in the following code:

```
1  public class Practice {
2      public static void main(String []args){
3          String s = "Hello";
4          int j = s.charAt('e');
5          for (int i = 0; i <= s.length(); i++)
6              if (s.charAt(i) == 'a');
7                  System.out.println("cool it's an a");
8          if (s == "Hello")
9              s+= " World";
10         System.out.println(s);
11     }
12 }
```

1. charAt takes a number and returns a character, what I should have put was s.indexOf(some int)
2. For loop goes one too far. Should have put i < s.length() or i < s.length() – 1.
3. semicolon after the if statement inside the for loop
4. must check equality of Strings with .equals NOT ==. So instead it should be s.equals("Hello");

Store the result when you check if the predefined String variables **s1** and **s2** are equal into the pre-defined variable **b**.

```
b = s1.equals(s2);
```

Store the result when you check if the predefined int variables **i1** and **i2** are equal into the pre-defined variable **b**.

```
b = i1 == i2;
```

Based on the predefined String variable **s**.
Write an if-else if-else statement:

- when the length of s is less than 3 print "short word"
- when the length of s is more than 12 print "long word"
- for any other word print "between 3 and 12"

```java
if (s.length() < 3)
  System.out.println("short word");
else if (s.length() > 12)
  System.out.println("long word");
else
  System.out.println("between 3 and 12");
```

What does the following code print?

```
String s = "Cool bro";
System.out.println(s.substring(2, 6));
```

ol b

What does the console print based off the following code?

```
1 public class Practice {
2     public static void main(String []args){
3         String s = "Koala Bears";
4         for (int i = 0; i < s.length(); i+=2)
5             System.out.print(s.charAt(i));
6     }
7 }
```

KaaBas

Scanners

Use the predefined Scanner **keys** to read and store the *first* word into the predefined String variable **s**.

Line:
Hello World! How's it going?

```
s = keys.next();
```

Use the predefined Scanner **keys** to read and store the following *line* into the predefined String variable **s**.

Line being read:
Hello World! How's it going?

```
s = keys.nextLine();
```

Declare a Scanner called **input** that reads the following information (and in this order) and stores into respective variables that you must declare:
- word
- double
- first character of the next word
- the rest of the line
- an integer
- the full next line

```java
Scanner input = new Scanner (System.in);
String word, line0, line1;
double d;
char c;
int i;

word = input.next();
d = input.nextDouble();
c = input.next().charAt(0);
line0 = input.nextLine();
i = input.nextInt();
input.nextLine();
line1 = input.nextLine();
```

Loops

Write a for loop that prints each character in the predefined variable String **s** separated by an ampersand (&) all on the same line.

```java
for (int i = 0; i < s.length(); i++)
    System.out.print(s.charAt(i) + "&");
```

Write a while loop that prints the numbers 3 – 9 (inclusive) all on new lines.

```java
int i = 3;
while (i <= 9) {
  System.out.println(i);
  i++;
}
```

What does the following code print?

```java
for (int l = 0; l > 0; l++)
    System.out.println(l);
```

nothing

Which one of these would not go to the end of String s? (Specify which ones cause errors and which ones are just incorrect (but they compile)?

A. for (int i = 0; i <= s.length(); i++)
B. for (int i = 0; i < s.length()+1; i++)
C. for (int i = 0; i < s.length(); i++)
D. for (int i = 0; i <= s.length() -1; i++)
E. for (int i = 0; i < s.length() -1; i ++)

A gives an error (goes one more)
B gives an error (goes one more)
C is correct
D is correct
E is incorrect only goes to the second to the last index

Write a do-while loop that will add the sum of all numbers from 1 - 19 (inclusive).

```
int count = 1;
int sum = 0;
do {
  sum += count;
  count++;
} while(count < 20);
```