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 \texttt{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.
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:

```java
public class Practice {
    public static void main(String[] args) {
        String s = "Hello";
        int j = s.charAt('e');
        for (int i = 0; i <= s.length(); i++)
            if (s.charAt(i) == 'a')
                System.out.println("cool it’s an a");
        if (s == "Hello")
            s += " World";
        System.out.println(s);
    }
}
```
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 \texttt{i1} and \texttt{i2} are equal into the pre-defined variable \texttt{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”
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?

```java
String s = "Cool bro";
System.out.println(s.substring(2, 6));
```
What does the console print based off the following code?

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