Exam 2 Practice #2

1) Write a code segment that has the user enter a String and a char. It should then count and print how many times the char appears in the String.

   Example: user enters – axbxxc and x
   output – 3

2) Write a code segment that reads a String entered by the user. It should construct a new String containing every other char in the original String and then print the new String.

   Example: user enters – abcdefg
   new string – aceg

3) Write a code segment that has the user enter a String ***sentence*** and a String ***word***. If ***word*** appears in ***sentence*** then it should print the next character in ***sentence*** after the first occurrence of ***word***, "NO MORE CHARS" if there is no next character, or "NOT FOUND" if ***word*** does not appear in ***sentence***.

   Examples:

sentence	***word***	***output***
the one that got away	th	e
the one that got away	way	NO MORE CHARS
the one that got away	antelope	NOT FOUND

4) Write a code segment that has the user enter a String ***sentence*** and a String ***word***. If the first time ***word*** appears in ***sentence*** it occurs twice in a row, print "TWICE" and print ***sentence*** with the double ***word*** removed. If the first time it appears it occurs only once, print "ONCE" and print ***sentence*** with the single ***word*** removed. If ***word*** never appears in ***sentence*** then print "NOT FOUND" and print the original ***sentence***.

   Examples:

sentence	***word***	***output***
xxABAByyyABz	AB	TWICE xxyyyABz
xxAByyyABABz	AB	ONCE xxyyyABABz
xxAyBz	AB	NOT FOUND xxAyBz

5) Write a code segment that plays a simple guessing game. The player gets to play MAX rounds. (Assume that the final variable MAX has already been declared and initialized.) Here are the rules for each round:

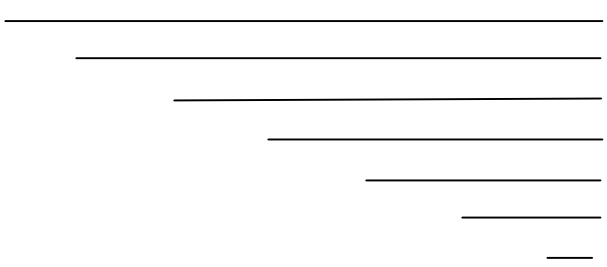
   In each round the program asks the player to enter an integer. If the entry is exactly twice the round number then the player wins that round. Otherwise the player loses the round. For example, during round 3 the player wins if they enter a 6 and loses if they enter anything else.

   At the end of each round, tell the player whether they won or lost. At the end of the game, tell the user how many times they won and also print the winning percentage. (Sample end-of-game output: "You won 5 times for a winning percentage of 24.56%.")

6) Assume the following class scope variables have been assigned values in the main:

```
public static int numLines;     // How many lines to draw
public static int maxWidth;     // Width of the first line
public static int height;       // How far apart the lines are vertically
```

   Write the paint routine to draw the following figure based on those variables. Assume that the first line starts at (X_OFFSET, Y_OFFSET).
   (Hint: Each line will start further over by maxWidth / numLines)



Solutions

1)
```
System.out.print("Enter String:");
String str = console.nextLine( );
System.out.print("Enter char:");
String chAsString = console.nextLine( );
char ch = chAsString.charAt(0);

int count = 0;
for (int index = 0; index < str.length( ); index++)
{
    if (str.charAt(index) == ch)
    {
        count++;
    }
}
System.out.println(count);
```

2)
```
System.out.print("Enter String:");
String str = console.nextLine( );
String newStr = "";
for (int index = 0; index < str.length( ); index = index + 2)
{
    newStr = newStr + str.charAt(index);
}
System.out.println(newStr);
```

3)
```
System.out.print("Enter a sentence:");
String sentence = console.nextLine( );
System.out.print("Enter a word:");
String word = console.nextLine( );

int pos = sentence.indexOf(word);
int nextCharPos = pos + word.length( );
if (pos == -1)
{
    System.out.println("NOT FOUND");
}
else if (nextCharPos >= sentence.length( ))
{
    System.out.println("NO MORE CHARS");
}
else
{
    System.out.println(sentence.charAt(nextCharPos);
}
```

4)

```
System.out.print("Enter a sentence:");
String sentence = console.nextLine( );
System.out.print("Enter a word:");
String word = console.nextLine( );

String result;
int pos = sentence.indexOf(word);
if (pos == -1)
{
    result = "NOT FOUND";
}
else
{
    String start = sentence.substring(0, pos);
    String restAfterWord = sentence.substring(pos + word.length());
    if (restAfterWord.indexOf(word) == 0)
    {
        result = "TWICE";
        sentence = start + restAfterWord.substring(word.length());
    }
    else
    {
        result = "ONCE";
        sentence = start + restAfterWord;
    }
}
System.out.println(result);
System.out.println(sentence);
```

5)

```
int wins = 0;
for (int round = 1;  round <= MAX; round++)
{
    System.out.print("Enter a guess:  ");
    int entry = console.nextInt( );
    if (entry == 2 * round)
    {
        wins++;
        System.out.println("You won!);
    }
    else
    {
        System.out.println("You lost.");
    }
}

double winPercentage = 100.0 * wins / MAX;
System.out.println ("You won " + wins + " times for a winning percentage of " +
                                                                    winPercentage + "%.");
```

6)

```
public void paint(Graphics g)
{
    int step = maxWidth / numLines;
    for (int line = 0; line < numLines; line++)
    {
        int xStart = X_OFFSET + line * step;
        int xEnd = X_OFFSET + maxWidth;
        int y = Y_OFFSET + line * height;
        g.drawLine(xStart, y, xEnd, y);
    }
}
```