**HW X – Finding URLs -** Due: xx/xx/2021

**Exercise motivation:**

As we’ve seen Strings are a very essential, non-primitive data type.

A String is just a representation of a sequence of character, but with a String **object**, we can do much more.

For example, let’s say we have a variable named “s” in our program:

String s = “Hello World”;

Now we can “ask” the variable s questions, by invoking **methods** on it.

We can ask it what is the index (starting from 0) of a given character, or a substring:

s.indexOf(‘l’); // will return 2

s.indexOf(“orl”); // will return 7

s.indexOf(‘c’); // will return -1

To understand what methods we can invoke with the String object, you should look at its official [Java Documentation](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html).

**Special Characters**

Some characters in Java have a special meaning when encountered alone, or together in a String.

Say we want to print a quote by someone. Doing so by writing:

System.out.println(“She said: “Where is Kevin?””);

ill not even compile. Can you see why?

In order to represent special characters in a String, we need to “escape” them, and this is done with the special character ‘\’ (backslash).

If we wanted to print the above String correctly, we should have written:

System.out.println(“She said: \“Where is Kevin?\””);

Now the phrase will be printed to screen, and there would be no compilation errors.

Other special character are “\n” (will result in a new line), “\t” ( a tab) and many more.

You should not be worried about these for now, but as a thought – how would you print the character ‘\’? Think about it.

**HTML**

HTML is the markup language all web pages are built upon.

It is used to describe the different sections of the page, insert elements, and order them. (Nowadays the styling of the functionality of the Web page is handled with other languages – such as CSS and JavaScript, respectively).

The HTML language is made of **tags.** Every element on the page has its own tag, usually in the form of:

<tag>

…

</tag>

A tag can also have **attributes**, such a ta <a> tag, which represents **links.**

**Links**

A link in HTML is represented by the tag <a> (“a” is short for “anchor”).

For example, if we our web page to link to a specific page, we would write:

<a href=”<https://www.idc.ac.il>”>IDC Website</a>

In that example, the text “IDC Website” will appear in the browser, and clicking it will open the linked **URL** (Uniform Resource Locator). For this exercise sake, a URL is simply a full web address.

(in this case “href” is an attribute associate with the <a> tag).

**Exercise**

In this exercise, you will be given a class name FindURLS. The class will have a HTML code, represented as a String.

You need to write the code for two methods –

* public static void findFirstYoutubeURL(String html)

This method should look for the first appearance of a URL of a YouTube website in the HTML String, and print it to console.

* public static void findALLYoutubeURL(String html)

This method should print **ALL** URLs for a YouTube website in the HTML String.

|  |
| --- |
| Read each method’s documentation to better understand the functionality you should implement. You should also read the String class API.  **Hint:** indexOf(…) and substring(…) will be useful to use in this exercise. |

Good Luck!