

S022: Loops, conditions and Github

Definitions/Concepts	
Loops	<ul style="list-style-type: none"> Blocks of code, which have a defined set of instructions and which are repeated a given a number of times. There are various types of loops in JS.
For Loops	<ul style="list-style-type: none"> The for loop in JS has the following syntax: <pre>for(initialization;condition; incrementation/decrementation) { statement block; }</pre> Initialization: This defines the starting statement of the loop and is executed once before running the loop. It is the initialiser for the loop. By initialiser I mean it decides the starting condition for the loop. For example: if you had to print your numbers from 100 to 1,00,000 you will need to initialise the starting as 100 instead of 1. Condition: The second statement is also known as the evaluation or conditional statement. This specifies the limit up to which you will be running the loop. For example, you wanted to stop the loop at 5000, you will be setting statement 2 as $i \leq 5000$; Incrementation/Decrementation: The third and final statement is called the increment statement. It defines the value of the loop variable after each time a loop runs.
while loop	<ul style="list-style-type: none"> The while loop loops through a block of code as long as a specified condition is true. It has a syntax in the following manner. <pre>while(condition) { while block statements; }</pre>



	<ul style="list-style-type: none">• The statement here refers to the condition which is checked every time before running the loop.• There are times we often forget to add a statement that takes our loop value towards the ending condition.• Like in the above statement if you forget to write <code>num=num+1</code>, the value of <code>num</code> will never increase and <code>num<31</code> will never be false. This will force the compiler to run the loop indefinitely, resulting in error.								
break	<ul style="list-style-type: none">• Suppose you arrive at a point where you had to stop your loop, be it while or for-loop.• Example:- Initially you had made your loop run up to 100, but you now want to stop it in the middle. This is possible with the break statement. Let us take an example: <pre>var num=5; while(num<31) { document.write(num); num=num+1; if(num==23)break; }</pre>• This will force the loop to stop as soon as the condition <code>num==23</code> is true. That is, it will stop the loop and move to the next line after the loop block.								
Operators	<table><tr><td><</td><td>Less than</td></tr><tr><td>></td><td>Greater than</td></tr><tr><td><=</td><td>Less than or equal</td></tr><tr><td>>=</td><td>Greater than or equal</td></tr></table>	<	Less than	>	Greater than	<=	Less than or equal	>=	Greater than or equal
<	Less than								
>	Greater than								
<=	Less than or equal								
>=	Greater than or equal								
Switch statement	<ul style="list-style-type: none">• Switch statement is used to execute one of many code blocks based on a variable or expression's value.• Suppose you were asked to print the table of 5 if you used input 5 else you were asked to print the table of 2. <p>You would have simply used the if-else conditional statements</p>								



	<p>and print your table.</p> <p>But what if I say, you had to print the table of 2,3,5,7, or 13 depending upon the value of the variable.</p> <p>This cannot be done with if-else because you do not have only true and false cases here.</p> <p>This is where the switch case comes into play.</p> <ul style="list-style-type: none">It has the following syntax: <pre>switch(expression) { case x: // code block break; case y: // code block break; default: // code block }</pre> <ul style="list-style-type: none">This is how it works:<ul style="list-style-type: none">The switch expression is evaluated once.The value of the expression is compared with the values of each case.If there is a match, the associated block of code is executed.If not then the default block is executed;
Github repository	<ul style="list-style-type: none">When we start with our offline coding we will need a code repository.A code repository is an archive with the code as well as the hosting facilities reside. You can also upload/ archive the project's technical documentation, web pages, snippets, patches, etc. which can be accessed publicly (open-source) or privately.
Purpose of source code-repository	<ul style="list-style-type: none">Version control for your project.Keeps your code safeSimplifies the process of unifying changes from developers' collaborationPrepares your code for release to productionKeep the statistics and analytics of the changes in the code.Code repositories are also digital portfolios or resumes. For a

developer, GitHub repository or commits to an open-source project are the best CV possible.

Activity links and Solutions

[Student Activity 1](#): Multiplication table

```

HTML
1 <h1>The Multiplication table of
  5</h1>

CSS (SCSS)

JS
1 var text = "";
2 var i;
3 for (i = 1; i <= 20; i++)
4 {
5   text += "5 x " + i + " = " + 5*i
6   + "<br>";
7 }
8 document.write(text);

```

Output:



The Multiplication table of 5

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

$$5 \times 3 = 15$$

$$5 \times 4 = 20$$

$$5 \times 5 = 25$$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

$$5 \times 8 = 40$$

$$5 \times 9 = 45$$

$$5 \times 10 = 50$$

$$5 \times 11 = 55$$

$$5 \times 12 = 60$$

$$5 \times 13 = 65$$

$$5 \times 14 = 70$$

$$5 \times 15 = 75$$

$$5 \times 16 = 80$$

$$5 \times 17 = 85$$

$$5 \times 18 = 90$$

$$5 \times 19 = 95$$

$$5 \times 20 = 100$$

[Student Activity 2](#): Print Right-angled triangle pattern

HTML

```
1 <h1>Printing a Right-Angle  
Triangle</h1>
```

CSS (SCSS)

JS

```
1 var text = "+";  
2 var i,j;  
3 for (i = 1; i <=10; i++)  
4 {  
5     for(j=1;j<=i;j++)  
6     {  
7         document.write(text);  
8     }  
9     document.write("<br>");  
10 }
```

Output:

Printing a Right-Angle Triangle

```
+  
++  
+++  
++++  
+++++  
++++++  
+++++++  
+++++++  
+++++++  
+++++++  
+++++++
```

[Student Activity 3:](#) Switch Case

JS

```
var num=7; //try changing this value
switch(num)
{
  case 4:
    var text = "";
    var i;
    for (i = 1; i < 20; i++)
    { text += "4 x " + i + " = " + 4*i + "<br>"; }
    document.write(text);
    break;
  case 5:
    var text = "";
    var i;
    for (i = 1; i < 20; i++)
    { text += "5 x " + i + " = " + 5*i + "<br>"; }
    document.write(text);
    break;
  default:
    var text = "";
    var i;
    for (i = 1; i < 20; i++)
    {
      text += "7 x " + i + " = " + 7*i + "<br>";
    }
    document.write(text);
}
```

Output:

7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
7 x 5 = 35
7 x 6 = 42
7 x 7 = 49
7 x 8 = 56
7 x 9 = 63
7 x 10 = 70
7 x 11 = 77
7 x 12 = 84
7 x 13 = 91
7 x 14 = 98
7 x 15 = 105
7 x 16 = 112
7 x 17 = 119
7 x 18 = 126
7 x 19 = 133

We will install Visual Studio Code in the next class but for today's class, we downloaded the zip (contains the .exe file for Visual Studio Code installation) file.

<https://code.visualstudio.com/>

To create a new account on GitHub

Fill the below details:-

Create your account

There were problems creating your account.

Username *

usernameExample123



Email address *

exampleofanemail@gmail.com



Password *

.....

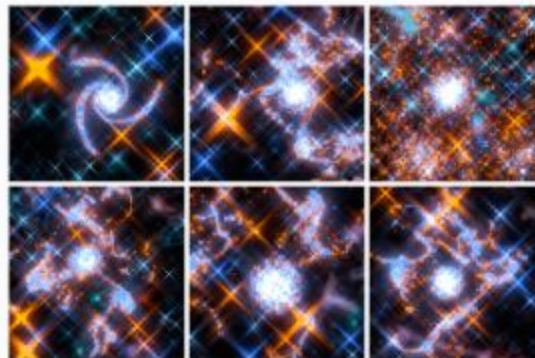
Make sure it's at least 15 characters OR **at least 8 characters including a number and a lowercase letter.** [Learn more.](#)

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Complete the verification and click Create Account

Email address *

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Password *

.....

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?

Create account

Select the desired



Welcome to GitHub

Woohoo! You've joined millions of developers who are doing their best work on GitHub. Tell us what you're interested in. We'll help you get there.

What kind of work do you do, mainly?

Software Engineer

I write code

Student

I go to school

Product Manager

I write specs

UX & Design

I draw interfaces

Data & Analytics

I write queries

Marketing & Sales

I look at charts

Teacher

I educate people

Other

I do my own thing

How much programming experience do you have?

None

I don't program at all

A little

I'm new to programming

Click Complete Setup



I am interested in:

languages, frameworks, industries

We'll connect you with communities and projects that fit your interests.


For example: `minecraft` `deployment` `image-processing`

Complete setup

**Verify the account from the registered email id.
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github.com/account/unverified-email

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Before you can contribute on GitHub, we need you to verify your email address.

An email containing verification instructions was sent to `exampleofanemail@gmail.com`.

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GitHub

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Features	Developer API	Help	About
Security	Partners	Community Forum	Blog
Team	Atom	Professional	Careers

FunFacts

Apple Icon originally featured Sir Isaac Newton sitting beneath a tree, with an apple about to fall on his head.