Övningsuppgift 19 JS 1

Grundläggande JS (inför onsdag 27/10)

1. I vilken ordning körs JavaScript? Spelar det någon roll i vilken ordning vi skriver? Hur lägger vi till JavaScript till en html-fil? Finns det fler sätt?

   I vilken ordning körs JavaScript?
   Scripts within <script></script> tags are executed in the order in which they appear in an HTML document.
   As for the code itself: All variables & functions get stored in the Memory Allocation Phase. This is followed by the Code Execution Phase during which code is executed line-by-line, ie one line at a time. The next line of code gets executed only after the previous line has been completed.

   Spelar det någon roll i vilken ordning vi skriver?
   Yes, see answer above.

   Hur lägger vi till JavaScript till en html-fil?
   By inserting it in <script></script> tags in the HTML file, any number if JS scripts can be included, in both header and <body> sections of the HTML doc.

   Finns det fler sätt?
   Yes, JS can be included either **internally**, by inserting code directly or **externally** by linking to external JS.files. Eg:

   Internally:
   ```
   <script>
   function myFunction() {
     document.getElementById("demo").innerHTML = "Paragraph changed.";
   }
   </script>
   ```

   Externally:
   ```
   <script src="myScript.js"></script>
   ```

2. Vad är en eventlistener? Ge ett exempel på hur den fungerar.
   a procedure in JS that waits for an event to occur. Simple examples events are: a user clicking the mouse or pressing a key on the keyboard.
   Ge ett exempel på hur den fungerar.
   see https://www.w3schools.com/jsref/met_element_addeventlistener.asp

Attach a click event to a <button> element with id="myBtn". When the user clicks on the button, output "Hello World" in a <p> (or other) element with id="demo".
In code:
document.getElementById("myBtn").addEventListener("click", function() {
  document.getElementById("demo").innerHTML = "Hello World";
});

3. Hur skriver vi kommentarer i JavaScript?

For single line comments, by adding // in front of th comment, eg.

```
// Write your comment text here
```

For comments that span across multiple line, by enclosing the comment in /* */ tags, eg:

```
/*
My long
Multiline,
Important
Comment
 */
```

Vad är en variabel? Hur ger vi en variabel ett värde?

A placeholder in memory to which values (number, strings, functions, objects etc.) can be assigned. A variable can be reassigned, I.e its value can be changed
Hur ger vi en variabel ett värde?
By using the '=' character, e.g.
myVariable = 23; (myVariable is the variable name, 23 the value). Note: a variable in (strictly typed) JS needs to declared before a value can be assigned by using the 'var' or 'let' keyword, e.g.
let myVariable = 23;

4. Vad är en funktion? Hur skriver vi och använder oss av en funktion i JavaScript?

A block of code designed to be reused and to perform a task (eg print a message or return a result). Functions are meant to be executed more than once. Functions must be called by other statements to be executed. They can take input values, called arguments that are processed by the function (eg. two numbers for which the func returns the sum)

```
function sumTwoNumbers(number1, number2) {
    return number1 + number2;
}
```

5. Vad är en operator och ett conditional statement? Ge exempel på användning av en if-sats

There are multiple operators in JS:
Arithmetic operators that perform math operations such as
'*' that multiplies to numbers, eg 5 * 3 //returns 15
'++' the increment operator that add 1 to a number, eg. 5++ //returns 6

('+' is also used to concatenate strings, eg "this" + "word" // returns "thisword")
Logical Operators to combine two or more conditions, eg
'&&' the AND operator that returns true if all conditions are true,
'||' the OR operator that returns true if at least one condition is true

Assignment Operators to perform a math operation on a value and assign the result to a variable, eg
'+=' to add a value to a variable, eg: let x = 1; x += 4 // x = 5

Comparison Operators to compare two operands, eg:
'!=' Compares inequality of two operands. Returns True if two operands are not equal, otherwise returns False

Ternary Operator to assign a value to a variable based on a condition, eg
'?' example: let c = a > b ? a : b; // returns a if a is greater than b, otherwise returns b

ett conditional statement med exempel:
a statement that tests if a condition is true, eg:
if (x > 5) {
        console.log("x is greater than 5");
}

Extra utmaning

Skapa ett enkelt nummer-gissningsspel. Det ska välja ett slumpmässigt tal mellan 1 och 100, sedan utmana spelaren att gissa antalet med max 10 gissningar. Efter varje tur ska spelaren få veta om den har rätt eller fel, och om de har fel, om gissningen var för låg eller för hög. Det ska också tala om för spelaren vilka nummer de tidigare gissat. Spelet ska avslutas när spelaren gissar rätt, eller när de får slut på gissningar. När spelet slutar ska spelaren ges möjlighet att spela igen.