// Document structure: HTML and CSS

```
<!DOCTYPE html>
<html>
    <head>
        <title>Program title</title>
        <meta name="author" content="your name">
        <meta charset="UTF-8">

        <!--  Program description
              Created:   -date-
        -->

        <style>                     /* CSS style info in here */
            h1 {                    /* applies to <h1></h1> */
                font-family:    'Arial';
                color:          Red;
                text-size:   16px;
            }

            #outputId {             /* applies to id="outputId" */
                font-weight:    bold;
                font-style:     italic;
                width:          700px;
            }

            .cloudClass {           /* applies to class="cloudClass" */
                position:       absolute;
                top:            15px;
                left:           15px;
            }
        </style>
    </head>

    <body>                          <!-- HTML user interface in here -->
        <h1>Heading text</h1>
        <p>
            <img src="filename.jpg"> <br>           <!-- an image -->
            <strong>Image created by: </strong>     <!-- bold text -->
            <a href="linkToPage.html">Link to page</a>      <!-- link -->
        </p>

        <p>
            Input a name:                           <!-- creates an input line -->
            <input id="inputId" type="text" size="5">

            <button id="buttonId">
                Click me!                           <!-- a clickable button -->
            </button><br>

            Results: <span id="outputId"></span>    <!-- output here -->
        </p>

        <ul>                        <!-- unordered list, or <ol> for ordered -->
            <li>Item #1</li>        <!-- list item -->
            <li>Item #2</li>
        </ul>

        <table id="tableId">                        <!-- make a table -->
            <tr>                                    <!-- new table row -->
                <th>Heading one</th>                <!-- new table data cell -->
                <th>Heading two</th>
            </tr>

            <tr>
                <td>Table data one</td>
                <td>Table data two</td>
            </tr>
        </table>

        <script>                    <!-- Javascript in here -->
        </script>

    </body>
</html>
```

// Program structure

```
<script>
    function mainProcedure() {
        // basic function pipeline
        var input   =getInput();
        var result  =processInput( input );
        outputResult( result );

        // basic function pipeline with object constructors
        var myObject    =new ObjectConstructor( "this", "that" );
        var theList     =myObject.makeTheCharacteristicList();
        myObject.outputTheList( theList );
    }

    function getInput () {  //INPUT: get the input from id="inputId"
        var input =document.querySelector( '#inputId' ).value;
        return input;
    }

    function processInput ( input ) { //PROCESS: format the result into HTML
        var result  ="";
        result      ="The result is: " + input;
        return result;
    }

    function outputResult ( result ) { //OUTPUT: put the result into #outputId
        document.querySelector( '#outputId' ).innerHTML         =result;
    }

    function ObjectConstructor ( firstCharacteristic, secondCharacteristic ) {
        //INIT: set up the internal variables for this object
        this.characteristicOne=firstCharacteristic;
        this.characteristicTwo=secondCharacteristic;

        this.makeTheCharacteristicList    =function () { //PROCESS: make list
            var output ="List of characteristics: "
                       + this.characteristicOne
                       + ", "
                       + this.characteristicTwo
            return output;
        }

        this.outputTheList      =function ( output ) { //OUTPUT: output list
            document.querySelector( '#outputId' ).innerHTML   =output;
        }
    }
</script>
```

// INIT: and variables

```
<script
    src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js">
</script>

<script>
    var stringVar       ="";            // define as  an empty string
    var numberVar       =0;             // define as  an empty number

    var exampleArr      =[];            // define as  an empty array
    var example2Arr     =[ 1, 2, 3, 4 ];
    var nameArr         ="Will, Rasim, Nick, Steve".split(", ");

    var studentObj              ={};   // define as  an empty object
    studentObj.firstName        ="Tayvon";
    studentObj[ "lastName" ]    ="West";

    var teacherObj ={
        firstName  ="Dave",
        lastName   ="Drapak",
        age        =47
    };
</script>
```

// INPUT:

```
<script>
    window.onkeydown = function ( keyEvent ) {
        var unicodeNumber =keyEvent.which || keyEvent.keyCode;
        mainProcedure( unicodeNumber );
    }

    //INPUT: read from the input line at #inputId
    var input =document.querySelector( '#inputId' ).value;

    var rightNow            =new Date();

    document.body.onload                                = mainProcedure;
    document.querySelector( '#buttonId" ).onclick       = mainProcedure;
    document.querySelector( '#inputId" ).onchange       = mainProcedure;
    document.querySelector( '#imageId" ).onmouseover    = mainProcedure;
    document.querySelector( '#imageId" ).onmouseout     = mainProcedure;
</script>
```

// PROCESS:

```
var twoToThePowerOfSix          = Math.pow( 2, 6 );
var valueOfPi                   = Math.PI;
var squareRootOfFour            = Math.sqrt( 4 );
var biggestNumberOfTheList      = Math.max( 4, 6, 8 );
var smallestNumberOfTheList     = Math.min( 4, 6, 8) ;
Var getTheFirstNumberInTheString = parseInt( "47 years old") ;

var roundNormally               = Math.round();
var roundDownToNearestInteger   = Math.floor();
var roundUpToNearestInterger    = Math.ceil();

var randomDecimalFromZeroToOne  = Math.random();
var dieRoll = Math.ceil( Math.random() *6 );        // die roll from 1 to 6

var joinedString                = "Hello" + " " + "world!";

var primaryColourArr        = "Cyan, Yellow, Magenta".split( ", " );
var secondaryColourArr      = [ "Green", "Orange", "Purple" ];
var secondaryListString     = secondaryColourArr.join( ", ") ;

// remember to use var rightNow = new Date() in the input function
var dateOfTheMonth  = rightNow.getDate();           // 1-31
var dayOfTheWeek    = rightNow.getDay();            // 0-6
var year            = rightNow.getFullYear();
var month           = rightNow.getMonth();          // 0 –11
var hour            = rightNow.getHours();          // 0 –23
var minutes         = rightNow.getMinutes();        // 0 –59
var seconds         = rightNow.getSeconds();        // 0 –59


for ( i in exampleArr ) {
    // loop through each index of exampleArr
}

for ( count=1;  count <= 10; count = count +1 ) {
    // loop starting at 1, stopping at 10, and adding 1 at the end of each loop
}

//IF: the name typed in is "Ben"
if ( inputName == 'Ben' ) {
    // do something

//IF: the name typed in is 'Zoe'
} else if ( inputName ==  'Zoe' ) {
    // do something else

//ELSE: for every other name...
} else {
    // do something by default
}
```

// OUTPUT:

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js">
</script>

<script>
    // put Hi! Inside the element with id="outputId"
    document.querySelector( '#outputId' ).innerHTML     = "Hi!";

    document.querySelector( '#outputId' ).style.fontSize  = 14 + "px";
    document.querySelector( '#outputId' ).style.color     = "Red";

    document.querySelector( '#outputId' ).style.width     = 100 + "px";
    document.querySelector( '#outputId' ).style.position  ="absolute";
    document.querySelector( '#outputId' ).style.top       = 50 + "px";
    document.querySelector( '#outputId' ).style.left      = 35 + "px";

    document.querySelector( '#outputId' ).style.visibility  = "hidden";
    document.querySelector( '#outputId' ).style.opacity     = 0.5;

    document.querySelector( '#imageId' ).src                = "newimage.png";

    // remember to load the jQuery library (look up) in order to use animation
    // also remember to set  #animationId to "position: absolute;"

    $("#animationId").animate(
        {width:     50 + "px"},
        {duration:  400}
    );
    $("#animationId").animate(
        {top:       "+=50px", right: "-=50px" },
        {duration:  fast},
        {easing:    swing}
    );
    $("#animationId").animate(
        {left:      "+=50px"},
        {duration:  slow},
        {easing:    linear},
        {complete: functionToCallWhenAnimationIsFinished() }
    );
</script>
```

// Good programming style

Start each program with:
- Your name
- A description of the program
- The date created,
- Dates modified and an explanation of daily changes

Make sure that you have a descriptive comment for every function & method

Make sure that you have a descriptive comment for every if statement and loop

Use descriptive, full language names for functions and variables

Use **camelCaseLettering** for variables and functions

Use **UpperCaseFirst** for object constructors

Avoid lines that scroll off the screen (longer than 95 characters)

If a function or method is longer than 20 lines, make a sub-function for legibility

Indent your code with every block

Organize your code into: **INIT:** → **main** → **INPUT:** → **PROCESS:** → **OUTPUT:**

Organize your object constructors into: **INIT:** → **INPUT:** → **PROCESS:** → **OUTPUT:**

Separate your HTML clearly into <head> (<meta>/<script>/<style>) and <body>