// 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-
        -->

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

        <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;
            }

            .pic {                  /* applies to class="pic" */
                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 type="button" onclick="mainProc();">
                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>

    </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   =var input =document.getElementById('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.getElementById('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.getElementById('outputID').innerHTML   =output;
        }
    }
</script>
```

// INIT: and variables

```
<script
    src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js">
</script>

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

    var arrayVar    =[];            // define as  an empty array
    var arrayVar2   =[ 1, 2, 3, 4 ];
    var names       ="Will, Rasim, Nick, Steve".split(", ");

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

    var objectVar ={
        firstName  ="Dave",
        lastName   ="Drapak",
        age        =45
    };
</script>
```

// INPUT:

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

    // read from the input line at id="inputID"
    var input =document.getElementById('inputID').value;

    var rightNow            =new Date();
</script>

<body onload="mainProcedure();">
    <img src="clickyImage.jpg" onclick="clickedImage();">

    <input type="text" size="5" id="inputID">

    <button type="button" onclick="mainProcedure();">
        Click me!
    </button>
</body>
```

// 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("45 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 primaryColourArray      ="Cyan, Yellow, Magenta".split(", ");

var secondaryColourArray    =["Green", "Orange", "Purple"];
var secondaryList           =secondaryColourArray.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 ( count=1;  count <= 10; count = count +1) {
    // loop starting at 1, stopping at 10, and adding 1 at the end of each loop
}


if ( testVar == 'foo' ) {
    // do something
} else if ( testVar == 'bar' ) {
    // do something else
} else {
    // do something by default
}
```

// OUTPUT:

```
<script>
    // put Hi! Inside the element with id="outputID"
    document.getElementById('outputID').innerHTML       = "Hi!";

    document.getElementById('outputID').style.fontSize  ="14px";
    document.getElementById('outputID').style.color     ="Red";

    document.getElementById('outputID').style.width     ="100px";
    document.getElementById('outputID').style.position  ="absolute";
    document.getElementById('outputID').style.top       ="50px";
    document.getElementById('outputID').style.left      ="35px";

    document.getElementById('outputID').style.visibility  ="hidden";
    document.getElementById('outputID').style.opacity   ="0.5";

    document.getElementById('imageID').src              ="newimage.png";

    // remember to load the jQuery library in order to use animation
    $("#imageID").animate(
        {width:     "50px"},
        {duration:  400}
    );
    $("#imageID").animate(
        {top:       "+=50px"},
        {duration:  fast},
        {easing:    swing}
    );
    $("#imageID").animate(
        {left:      "+=50px"},
        {duration:  slow},
        {easing:    linear},
        {complete: functionToCallWhenAnimationIsFinished() }
    );
</script>

<body>
    <p>The answer is: <span id="outputID"></span></p>
    <img id="imageID" src="oldimage.png">
</body>
```

// 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 100 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: **main** → **INIT:** → **INPUT:** → **PROCESS:** → **OUTPUT:**

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

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