

Initial Training Covering Step 1 and 2



Enclosed

Contents

Introduction	2
Module 1 - Basic Programming Concepts	3
Week 1 - Key concepts to revise	3
Best Practices	4
Assignments	5
Module 2 - HTML and CSS	13
Week 2 - Key concepts to revise	13
Assignments	13
Week 3 - Key concepts of CSS	15
Assignments	16
Module 3 - Other key concepts	18
Week 4 - Learn other key concepts	18
Module 4 - Javascript, jQuery and Ajax	19
Javascript	19
Jquery	20
Ajax	20
Javascript Assignments	21
jQuery Assignment	24
AJAX Assignment	25

Introduction

This document is curated to brush your basic programming building blocks and give you good basic foundation to learn more complex concepts and other programming languages. Once you understand these basic concepts, it will give you enough confidence to learn the more complex concepts easily and on a rapid pace. This assignment is structured in such a manner that you should do it step by step without skipping any question and without taking any help from your peers or from the internet.

Welcome to exciting world of Programming

GET SET READY AND GO

ALL THE VERY BEST!!!!

Module 1 - Basic Programming Concepts

Week 1 - Key concepts to revise

1. Read about variables
2. Learn about keywords
3. Learn about Arrays and Strings
4. Learn about various type of loops
5. Learn about the Conditions
6. Learn about SCOPE
7. Learn about the functions
8. Recursion and how it works

Best Practices

Below are the set of best practices which you should follow and remember for each question of assignments you work upon.

These must be followed and much needed for bringing minimum quality in your work.

- ❖ Use proper naming convention for variables. Use variable name which make sense as per the logic you are building.
- ❖ Use comments at all required places.
- ❖ Save all assignments in different files and keep the proper name of the files.
- ❖ Organise the assignments in folders.
- ❖ Try to use the minimum number of lines to produce the desired output.
- ❖ Find and try to make your programs more efficient and use minimum number of variables and constructs.
- ❖ Try to reduce the complexity of the programs by reducing usage of loops and conditions.
- ❖ Try to write modular code and create function of reusable code.
- ❖ Don't take help of internet for finding the solution online. You can take help of internet to learn and understand the concepts but again not for find the solutions.
- ❖ Don't copy the code snippets from your peers. You can take help of them for understanding the concepts but again not for copying it.
- ❖ Don't just rely on the questions in these assignment, the more you practice the more you learn. So don't limit yourselves to these questions, try to find more similar problems online and solve them.

Assignments

Once you have read about all the above topics and understood them well,
then only attempt the assignments.

Don't Rush!!



HINT : You can choose any language of their preference to complete the assignments related to patterns

Q1. Write a program which Accept First Name, Middle name, Last name from user and show the full name to user

Q2. Write a program to calculate simple interest .user input the principle, rate and time output is total interest

Q3. Write a program to Calculate the salary of employee, user enter the basic salary, HRA, TA

Output Formulae : Salary = basic_salary + HRA + (2 x TA) + (50% x basic_salary)

Q4. Write a program a program where user enter the year the output is that year is leap or not.

Q5. Write a program to check that input number is even or odd or prime.

Q6. Write a program to show the calendar of week requested.

Q7. For all the below programs you need to create the patterns without taking any help of internet or your peers.

Pattern (1)

* * *

* * *

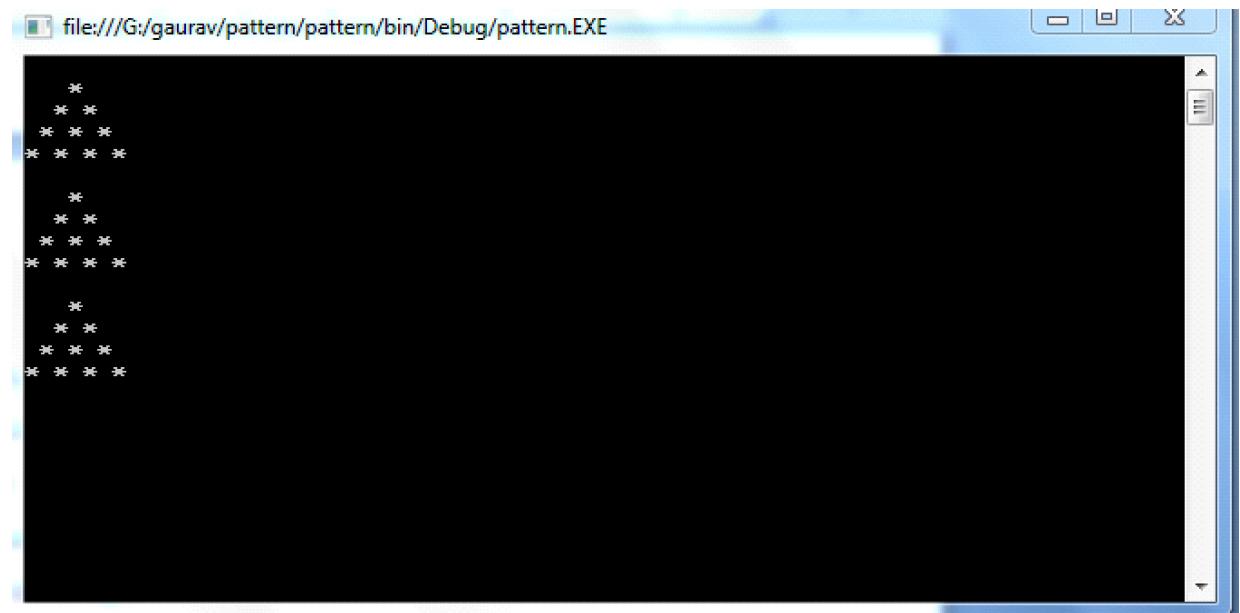
Pattern (2)

*

* *

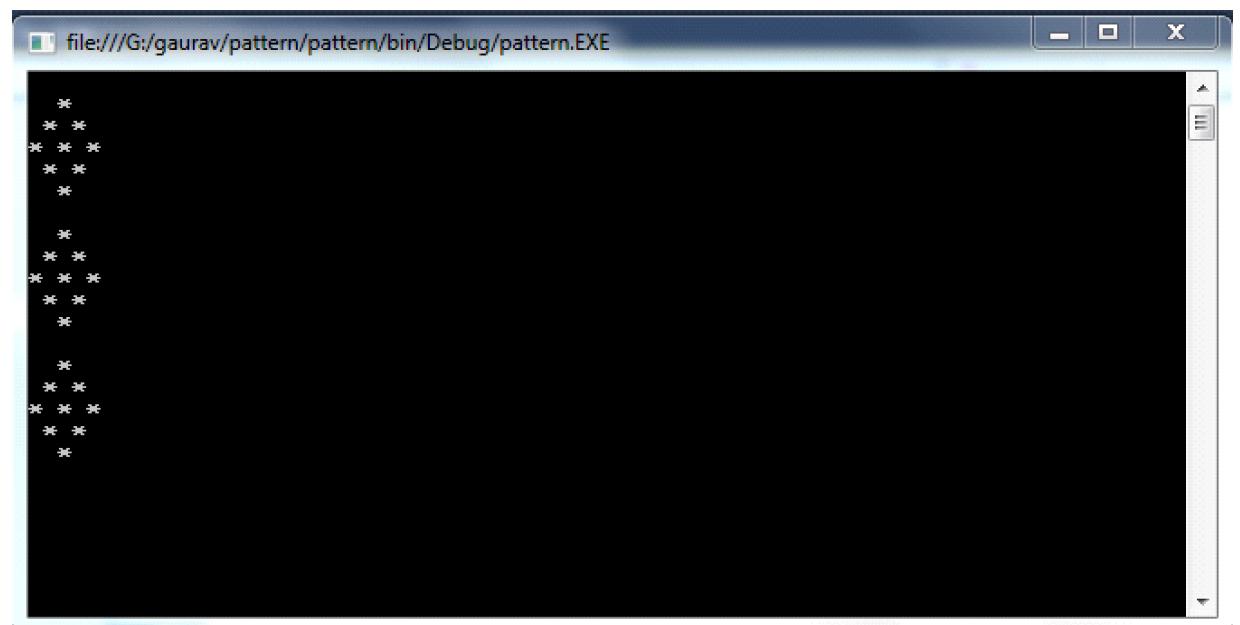
* * *

Pattern (3)



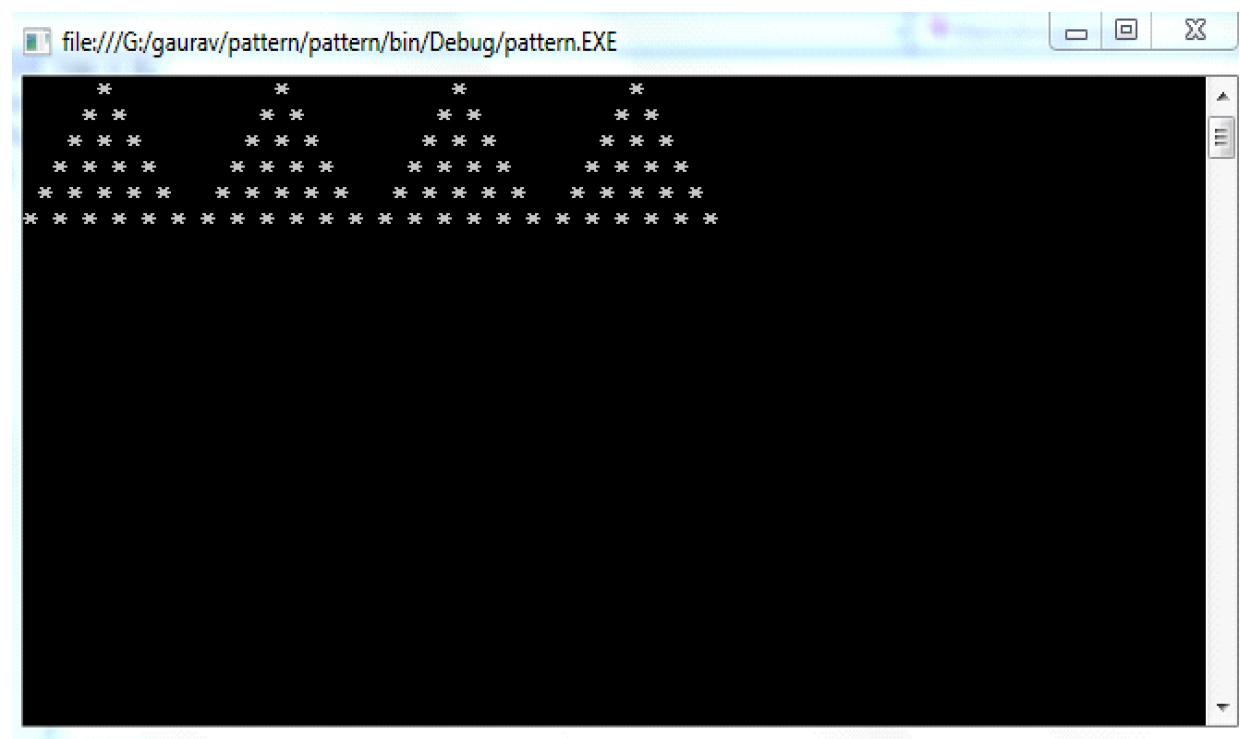
```
*  
* *  
* * *  
* * * *  
  
*  
* *  
* * *  
* * * *  
  
*  
* *  
* * *  
* * * *
```

Pattern (4)



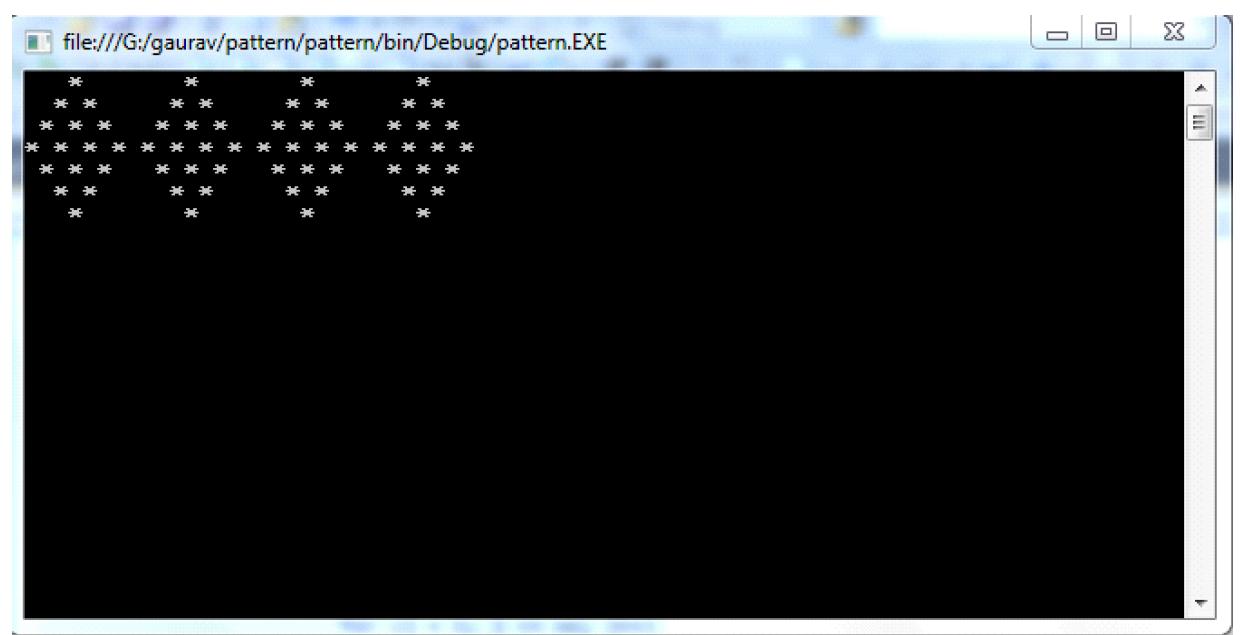
```
*  
* *  
* * *  
* *  
*  
  
*  
* *  
* * *  
* *  
*  
  
*  
* *  
* * *  
* *  
*
```

Pattern(5)



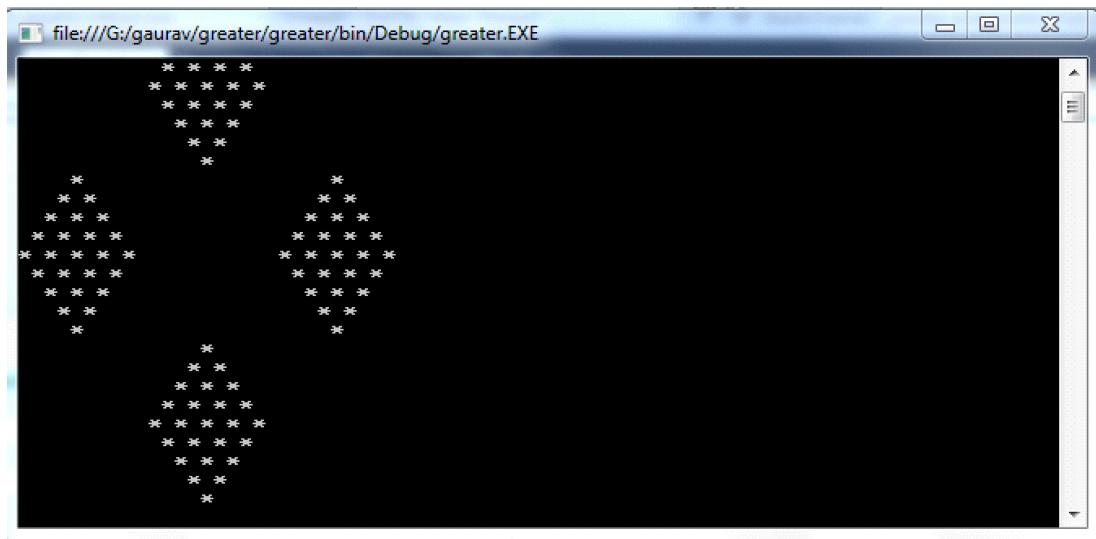
```
*      *
 * *    *
 * * *   *
 * * * *  *
 * * * * *
```

Pattern (6)



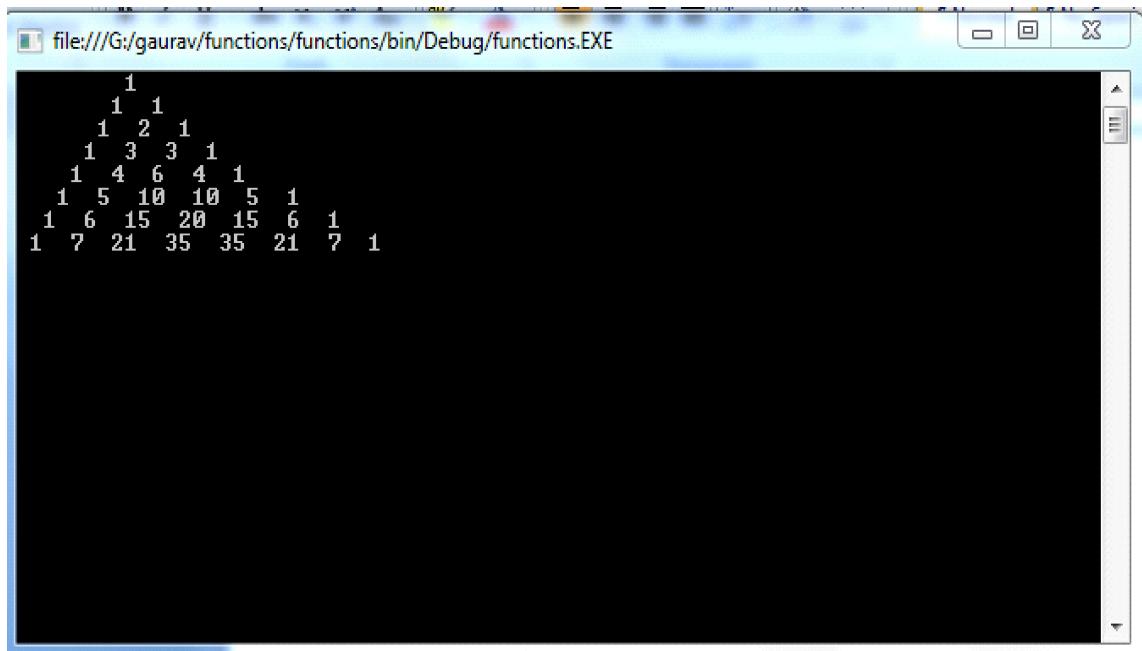
```
*      *
 * *    *
 * * *   *
 * * * *  *
 * * * * *
 * * * * *
```

Pattern (7)



Below all questions 8,9 and 10 are required to be done using
Recursion: -

- Q8 - Write a program to find the factorial of a number using recursion.
- Q9 - Write a program to print Fibonacci sequence using recursion.
- Q10 - Write a program to print the Pascal Triangle using recursion.



Below all questions you need to write the output of the programs.



HINT : You need to write the output of the programs on your notepad by doing a mental dry run of the code without executing it actually on the machine.

Q11

```
abc(0,5);
|
public void abc(int i, int j) {
    if(i<6){
        i++;j--;
        abc(i,j);
    }
    System.out.print(i);
    if(j<0){
        return ;
    }
    System.out.println(j);
}
```

Q12

```
int k=0;
for(int i = 0;i<5;i++){
    for(int j=i;j<6;j++){
        System.out.print("i ");
        k++;
    }
    if(k>3){
        System.out.println("Iotasol");
    }
}
```

Q13

```
abc(0,5);
public void abc(int i, int j) {
    System.out.print(i);
    if(i<6){
        i++;j--;
        abc(i,j);
    }
    if(j<0){
        return ;
    }
    System.out.println(j);
}
```

Q14

```
for(int i = 0;i<5;i++){
    int k=0;
    for(int j=i;j<6;j++){
        System.out.print("i ");
        k++;
    }

    if(k>3){
        System.out.println("Iotasol");
    }
}
```

Q15

```
int p = 5;
for(int i=0;i<5;i++){
    for(int j=i;j<5;j++){
        p++;
    }
    System.out.print("p>" + p + "> ");
    for(int k=5;k>i;k--){
        System.out.print(p-k);
        p--;
    }
    System.out.println("");
}
```

Q16

```
int arr[] = new int[]{0,1,1,1,6,6};
int arr2[] = new int[]{2,3,1,4,6,1};

for(int i=0;i<arr.length;i++){
    if(arr[i]<arr2[i]) {
        arr[i]=arr2[i]*2;
    }else if(i<arr.length-1) {
        arr2[i]=arr[i+1]*2;
    }
    System.out.print(arr[i]*arr2[i] + " ");
}
```

Q17

```
int arr[] = new int[]{0,1,1,1,6,6};

for(int i=0;i<arr.length;i++){
    if(arr[i]<2) {
        arr[i+1]+=1;
    }
    System.out.print(arr[i] + " ");
}
```

Module 2 - HTML and CSS

Week 2 - Key concepts to revise

1. Basic HTML Tags
2. Difference between HTML and XML
3. Difference between Div, Span and P tags
4. Form actions such post and get
5. Difference between submit and normal button
6. What are meta keywords?
7. What is XSD?
8. What is XSS?
9. What are different input fields available in HTML?
10. What are forms?
11. What is iframe?
12. What is the difference between iframe and popups?
13. What are other different languages similar to HTML and what are their applications?
14. What is SEO and why it is important?
15. How to put comments in the HTML?
16. What are mime types and what are different type of mime types available and what are their applications?
17. Read about HTML Page Layout and different parts such as Header, Navigation Bar, Main Content, Sidebar, footer, Body
18. Read about <!DOCTYPE html>
19. What is HTML5?

Assignments

Once you have read about all the above topics and understood them well,
then only attempt the assignments.

Q1 - Create an HTML page which plays Audio File

Q2 - Create an HTML page which plays FLASH File

Q3 - Create an HTML page which plays a VIDEO FILE

Q4 - Try to view an HTML design of any popular website and view the source-code of website and see how different tags and sections are organised?

Q5 -Create a static webpage using table tags of HTML.

Q6. Create a static web page which defines all text formatting tags of HTML in tabular format.

Q7. Create a webpage using list tags of HTML.

Q8. Create webpage to include image using HTML tag.

Q9. Create employee registration webpage using HTML form objects.

Q10. What is difference between name and id and other attributes of tags

Q11. How to include external files in HTML

Week 3 - Key concepts of CSS

1. Benefits of CSS
2. What are different type of styling?
3. What is difference between inline css, css in html and external css?
4. What is SASS?
5. What are benefits of SASS over CSS?
6. What are best practices for CSS?
7. How can you reuse the CSS styles?
8. What is nested CSS
9. How can you utilize the chrome web tool to try different stylings and CSS?
10. What is CSS BOX MODEL?
11. How to use Images and Backgrounds?
12. How to use display and position
13. Learn and explore more about using Colors, Fonts, Lists and Tables
14. Learn and understand more about Pseudo classes
15. Learn and explore more about Lighthouse and its usage and benefits?
16. What are responsive web design and how CSS can be used to achieve them
17. What is Mobile first approach?
18. Learn more about Flexbox and Grids
19. Learn about Transforms, Transitions and Animations
20. What are preprocessors?
21. Explore more about different CSS frameworks such as Bootstrap, Semantic UI & Materialize
22. !important - what's that?
23. CSS Architectures such as - BEM, OOCSS, SMACSS etc

Assignments

AGAIN :) Once you have read about all the above topics and understood them well, then only attempt the assignments.

Q1 - Create an HTML page zebra.html, and put your CSS directly into the HTML file using the <style> tag. Here is what your webpage should look like

Geographic Origin of Stanford Undergrads

Geographic Origin	Number of Students
California	2,943
Other US	3,447
Asia	264
The Americas	83
Europe	69
Africa	44
Middle East and North Africa	22
Pacific Basin	6

Source: Stanford Facts Website

Q2. Create a web page, organization.html, containing several layout components, including a header and navigational field.



The screenshot shows a web browser window with the following details:

- Address Bar:** Stanford Performing Arts
- Navigation Bar:** Back, Forward, Stop, Refresh, Home, Search, etc.
- URL:** file:///C:/Users/pyoung/Documents/_CS105/_11-12 1/_
- Search Bar:** Google
- Content Area:**
 - Section Header:**

Stanford Performing Arts

Autumn 2012 Edition
 - Bing Concert Hall:** 

The Bing Concert Hall at Stanford will play a vital role on campus and in the local community. The hall's exceptional acoustics and state-of-the-art technical capabilities will showcase the world's finest performers.
 - Calendar:**

Harmony for Humanity: Daniel Pearl World Music Concert

Sundays with the St. Lawrence String Quartet

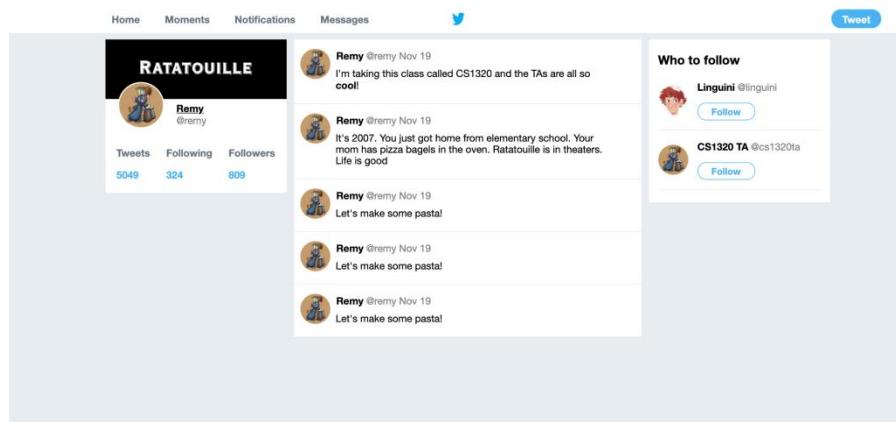
Merce Cunningham Dance Company

Juilliard String Quartet

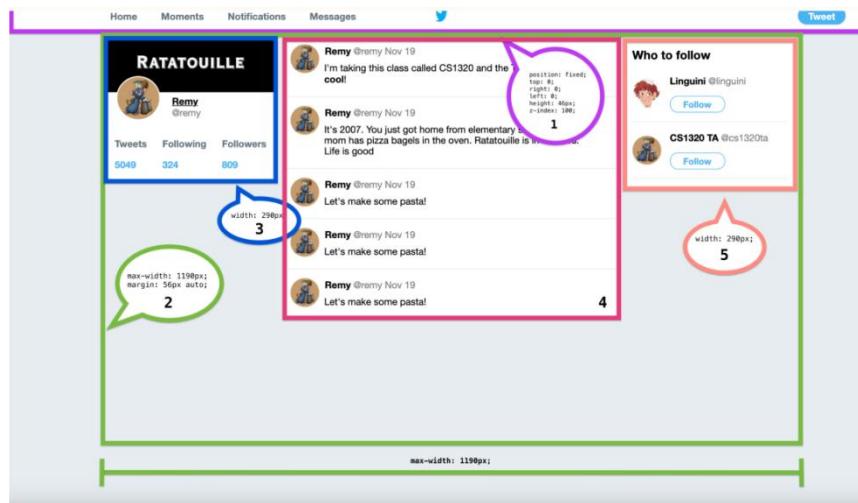
Q3. Create a web page which is responsive and looks like below and once seen in mobile view transforms to the right layout shown in mobile screen.



Q4. Create a page like below and save it as twitter.html (zoom page to see it clearly)



with below specifications I (zoom page to see it clearly)



Q5. Create an animation of your choice on the web page

Q6. Implement a Parallax effect

Module 3 - Other key concepts

Week 4 - Learn other key concepts

1. Learn more about HTTP and HTTPS
2. What is a URL and what are different part of it
3. What is DOMAIN
4. What are ISP?
5. How internet works?
6. What is client and server Architecture?
7. What is DOM?
8. What is difference between PORT and IP?
9. What is difference between Internet, intranet, extranet?
10. What are OWASP standards
11. What are different security threats?
12. What are different network protocols such as Telnet, HTTP, SSH, FTP
13. How is any URL request processed by browser?
14. What is localhost?
15. What is difference between static and dynamic content
16. What are different type of hosting providers

Module 4 - Javascript, jQuery and Ajax

Week 4 - Learn about Javascript and jQuery

Javascript

1. Features and History of Javascript
2. Learn about syntax of Javascript
3. How to Javascript engine works
4. What are prototypes
5. What are closures in Javascript
6. How to implement inheritance in Javascript?
7. How to do Error handling in Javascript?
8. What are different type of Datatypes available in Javascript?
9. What is undefined? and how is it different from null?
10. What is ECMAScript?
11. How to check a type of an instance of Javascript?
12. How to use “this” keyword and what are its benefits?
13. What is difference between internal and external Javascript?
14. What is Typescript vs Javascript
15. What is Javascript vs jQuery?
16. Difference Between =, ==, and === in JavaScript
17. How to take benefit of DOM object in Javascript?
18. How to use REGEX
19. Importance of innerHTML and innerTEXT
20. How to debug the Javascript using Chrome Dev tools?
21. Learn more about different Array functions like foreach, map, reduce, filter & so on.

Jquery

1. Benefits of jQuery over using vanilla Javascript
2. How to do animation in jQuery
3. How to do drag&Drop in jQuery
4. What is chaining of events in jQuery
5. What are different type of listeners and how to use them
6. What are jQuery Callbacks
7. What is jQuery Traversing, siblings, ancestors and descendants?
8. jQuery selectors and events

Ajax

1. What is Ajax
2. What is asynchronous vs synchronous calls
3. How is Ajax beneficial
4. What is difference between partial and full page reload
5. How is Ajax implemented in Javascript
6. How is Ajax implemented in jQuery

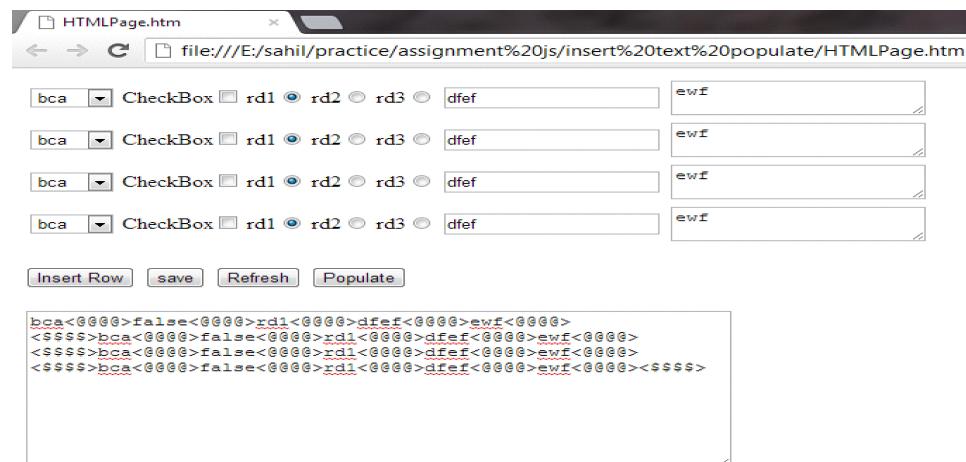
Javascript Assignments

AGAIN :) Once you have read about all the above topics and understood them well, then only attempt the assignments.

Q1 Create a webpage where images change as you mouseover the images. There will total of 9 images in a grid, they change as you do mouseover

Q2 A table is there and its row contain following elements excluding buttons.

Element	Description
Textbox	For getting input from user
Textarea	For getting input from user
Radiobutton	Three radio buttons will be present
Checkbox	One checkbox will be present
Multiple Select	One multiple select will be present
Textarea	This is separate textarea from the table row which holds the saved data
Save Button	By clicking on it , all the selected and inserted data will be saved in above text area
Insert Button	A new row will be created
Populate Button	All the save data will be recreated.
Delete Button	It will delete all the data.



The screenshot shows a web page titled "HTMLPage.htm" with the URL "file:///E:/sahil/practice/assignment%20js/insert%20text%20populate/HTMLPage.htm". The page contains a table with four rows. Each row has a checkbox, three radio buttons (rd1 is checked), and two text input fields. Below the table are buttons for "Insert Row", "save", "Refresh", and "Populate". A large text area at the bottom displays the following JavaScript code:

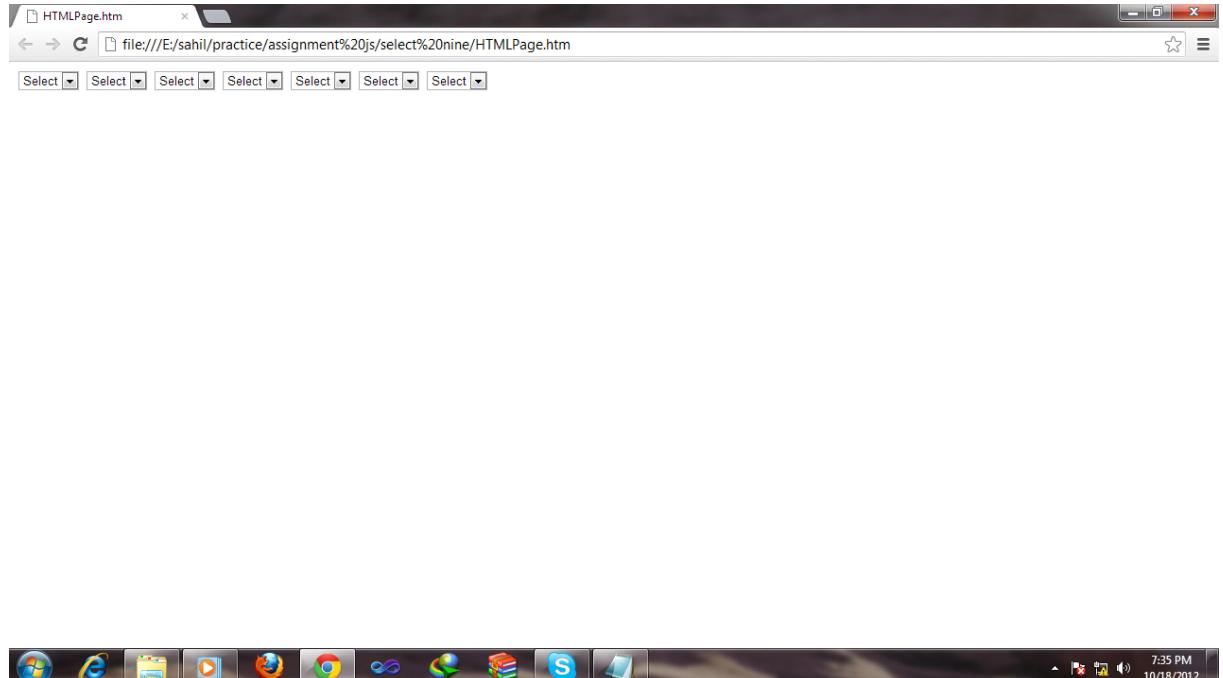
```

bca<@>false<@>rd1<@>def<@>ewf<@>
<$$$$>bca<@>false<@>rd1<@>def<@>ewf<@>
<$$$$>bca<@>false<@>rd1<@>def<@>ewf<@>
<$$$$>bca<@>false<@>rd1<@>def<@>ewf<@><$$$$>

```

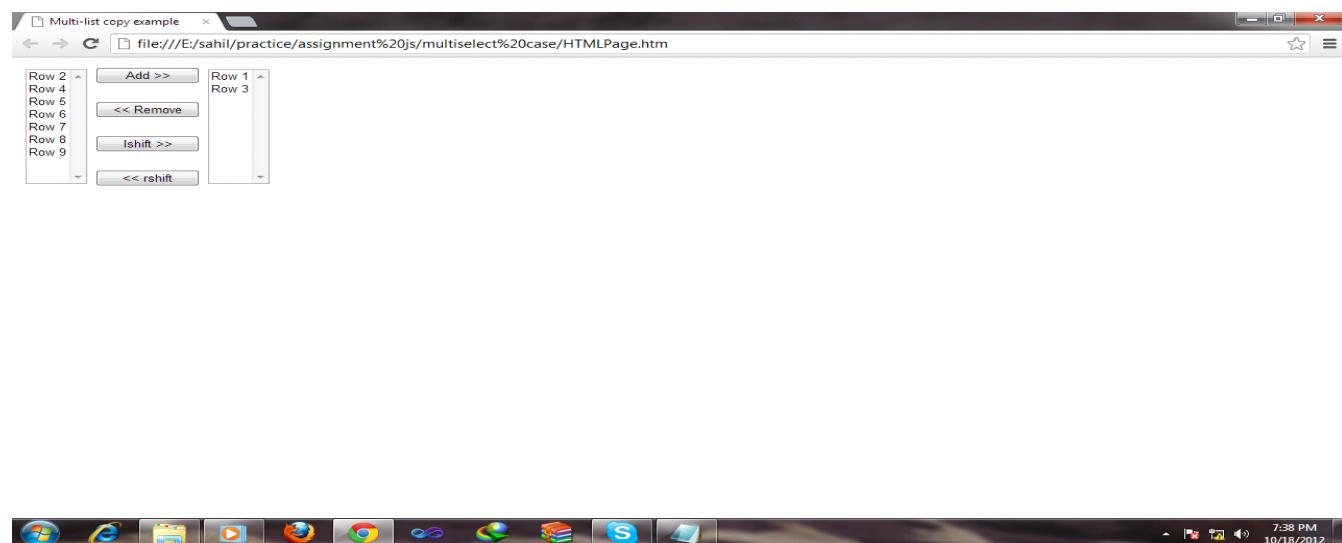


Q3. There are ten dropdown boxes in this assignment and there are ten same values in all these dropdown boxes. By selecting one of the value from the group of select boxes , that selected will be removed from all the select boxes .By changing a selected value of a particular select box, the previous unselected value will be added again in all these select boxes.



Q4. Two multiple select boxes are there. The target is to transfer value(s) from one select box to another

Element	Description
Move One Left	Moves one selected item from left select box to right select box
Move One Right	Moves one selected item from right select box to left select box
Move All Left	Move all items to the left select box.
Move All Right	Move all items to the right select box.



jQuery Assignment

Q1 A Slider of images in which images are showing and hiding one after another.

Q2 Drag and drop is to be created with condition that each droppable has particular drag-able i.e., a droppable can accept particular drag-able. Both drag-able and droppable are HTML Div elements.

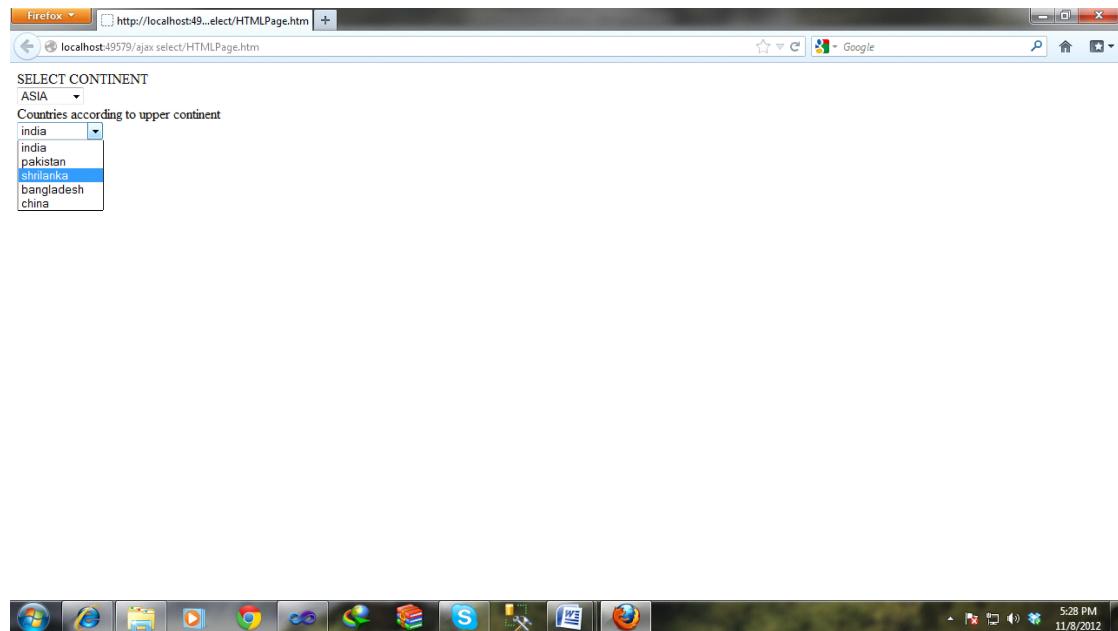
Q3 There is an image. By mouse-hovering the image, image has to fade down and a useful information is text is generated on image. By mouse-outing the image, effect given to image will be removed.

Q4 Searching of an image from a list of images.

Q5 Pagination of table is to be made. Pagination means a HTML table is divided into small pieces. At one time, a single piece of table is to be shown.

AJAX Assignment

Q1:SELECT Countries according to upper continent IN AJAX AS FOLLOWING e.g.?



2Q:SEARCH LIKE GOOGLE USING AJAX. You can find out any opensource api for that.