University of South-Eastern Norway
School of Business

WEB1100: Lecture 12
Web Development & HCI

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Agenda for today

- Exam
- Coding

Examination

WEB1100: Web Development and HCI (H 2021)

- Theory (30%)
  - MCQ (5-10Qs)
  - Definitions, understanding and/or description (4-5Qs)
- Analysis/evaluation (30%) 3-4Qs
  - Cases and/or tasks analysis
  - Web Content evaluation
  - Problem solving and/or Justification
- Coding (40%) 3-4Qs
  - Writing codes
  - Finding outcomes
  - Finding and correcting errors in code execution

Theory (30%)

- **Multiple Choice Questions:**
  - What is not the image format used in HTML document?

    a) .jpeg
    b) .png
    c) .ico
    d) .docx

  - Which tag does not have a closing tag?

    a) <img>
    b)
    c) <input>
    d) none of the above

Theory (30%)

- **Multiple Choice Questions:**
  - What is included in CSS style rules?

    a) formatting instructions
    b) contains style properties and values
    c) apply styles to assigned web elements
    d) all of the above

  - Which priority is correct for accessing CSS syntax?

    a) internal, inline, external
    b) external, inline, internal
    c) internal, external, inline
    d) inline, internal, external

Theory (30%)

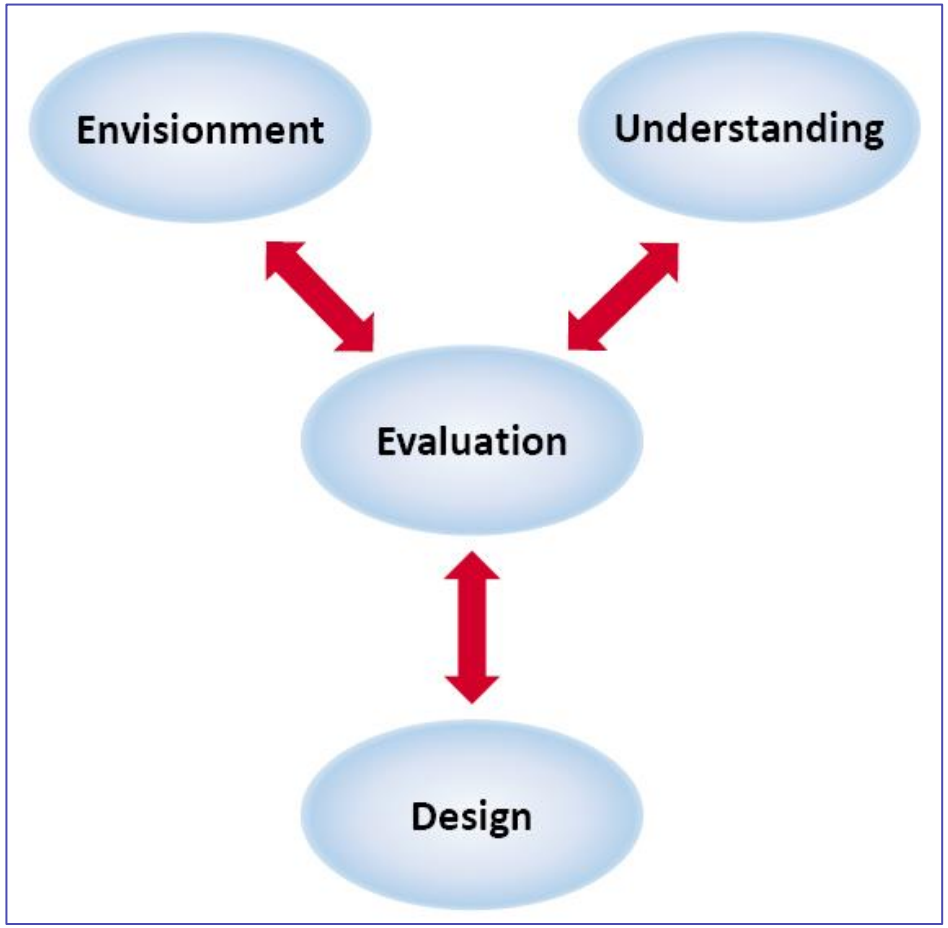
- **Definitions/understanding/description:**
  - What is the purpose of having JavaScript in HTML document?
  - Answer: JavaScript **brings programmability** in HTML to respond to the user, make decisions or automate repetitive tasks and thus **creates interactive web pages**. It is understood as **an interpreted language** that the browser executes each line of scripts as it comes to it. In JavaScript, writing or changing the script is **very simple** and changes are enacted **as soon as** the document is reloaded in the browser. **Examples**: displaying alert message, validating form values, making calculations, animating images, and so on.

Theory (30%)

- **Definitions/understanding/description:**
  - How UX design process is structured? Briefly explain its activities.
    - Answer: As depicted in the figure, there are **four activities** included in the overall process of creating good user interface, where evaluation is central. Everything gets evaluated at every step of the process. The process can start at any point – sometimes there is a **design in place**, sometimes we start with a form of **envisionment** such as a prototype, sometimes we start with **understanding**. The activities can happen in any order, **for example,** understanding might be evaluated, and a prototype built and evaluated, and some aspect of a physical design might then be identified.

UX Design Process

- Four key activities
- Understanding
- Envisionment
- Evaluation
- Design



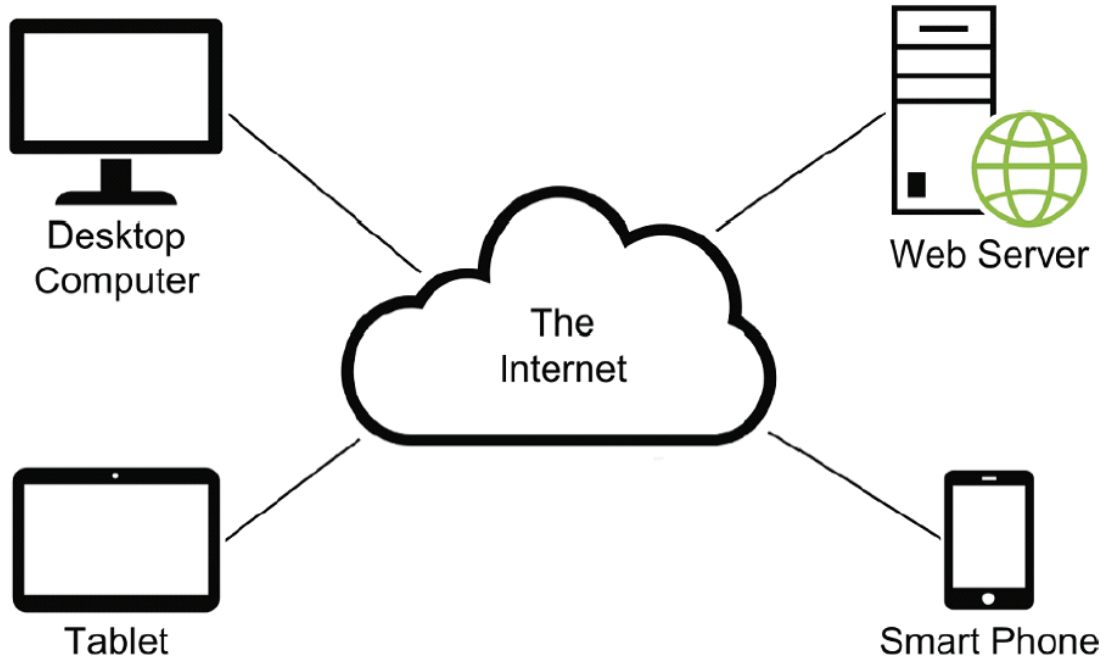
Theory (30%)

- **Definitions/understanding/description:**
  - How do web applications work?
    - Answer: A web application consists of **clients, a web server, and a network**. **The clients** use programs known as **web browser** to request **web pages** from the **web server**. The web server returns the pages that are requested to the browser. The web server holds the files that make up a web application. Finally, the network system makes clients and servers to communicate through local area network (LAN), wide area network (WAN), internet service provider (ISP) and internet exchange points (IXP). The overall process is illustrated in the following figure.

How Web Applications Work

The components of a web application

- client and web server
- web browsers
- network
  - LAN, WAN, ISP, IXP



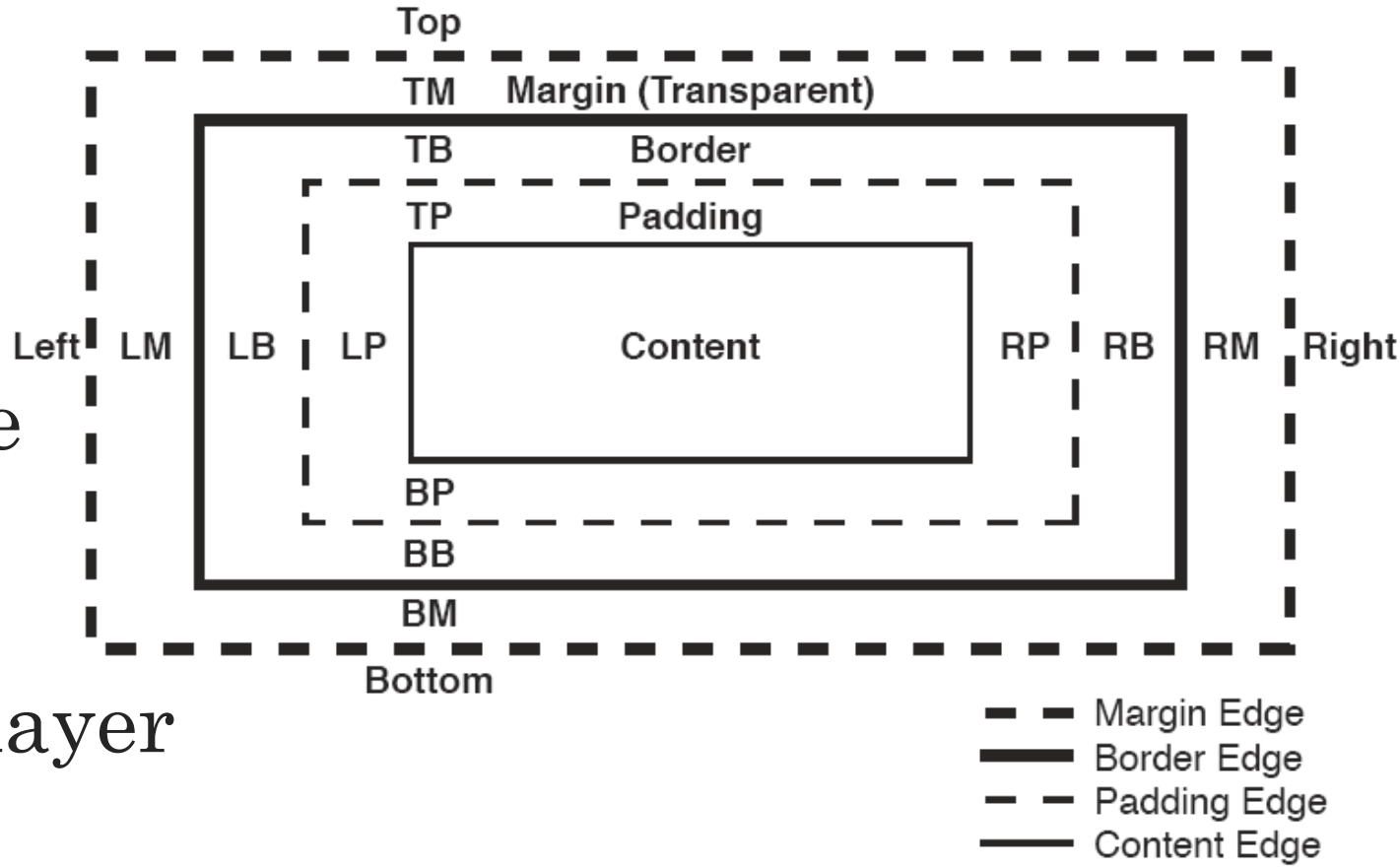
Theory (30%)

- **Definitions/understanding/description:**
  - Explain the Box Model designing web document.

Answer: The box model has **four main components** demonstrated in the figure afterward. The **innermost box** contains the content of the element. Surrounding that is **the padding**, then **the border**, and finally the outermost layer – **the margin**. In addition to properties that you can use to change how the content is displayed, CSS provides properties that can be used to change the padding, border, and margins around each element containing box. Padding and margin properties are used to **control whitespace around a box**. **Padding** is the whitespace **inside the border**, where **margin** is the whitespace **outside the border**. This is how the boxes separate surrounding elements.

The Box Model

- Content: the innermost box
- Padding: surrounding of content
- Borders: surrounding the padding
- Margins: the outermost layer



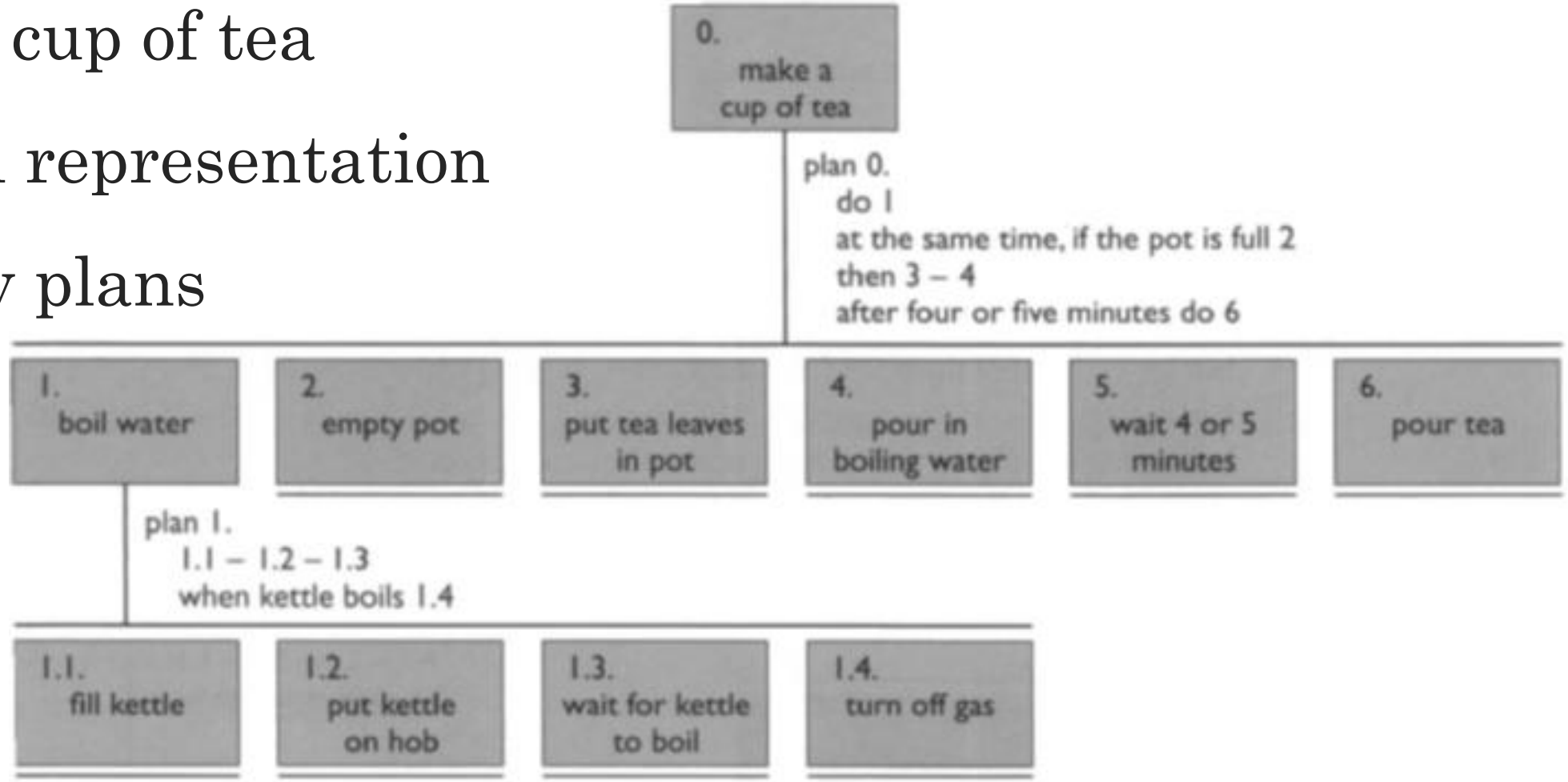
Analysis/evaluation (30%)

- **Case/task analysis:**
  - Please consider the case below to perform hierarchical task analysis (HTA). After studying the case carefully, you are asked to express a HTA graphically. Include all plans conveniently in your answer. Use the provided paper to manually draw the HTA.
  - Case: Task analysis of making a cup of tea.

Task Analysis

Hierarchical Task Analysis

- Making a cup of tea
- Graphical representation
- Necessary plans



Analysis/evaluation (30%)

Web content evaluation: You may be provided with a set of screenshots from a website and asked to perform a heuristic evaluation using selected design principles. For example, you can be asked to evaluate the interface depicted in the screenshots in terms of:

- Visibility: things are visible
- Consistency: consistent in using features & ways of working
- Familiarity: usage of familiar language and symbols
- Affordance: design things so it is clear what they are for
- Navigation: enable people to move around
- And so on……..

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CIEM - Centre for Integrated Emergency Management

Our vision

CIEM aims at improving emergency and disaster management by leveraging the potential of new technologies and the digital revolution.

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Analysis/evaluation (30%)

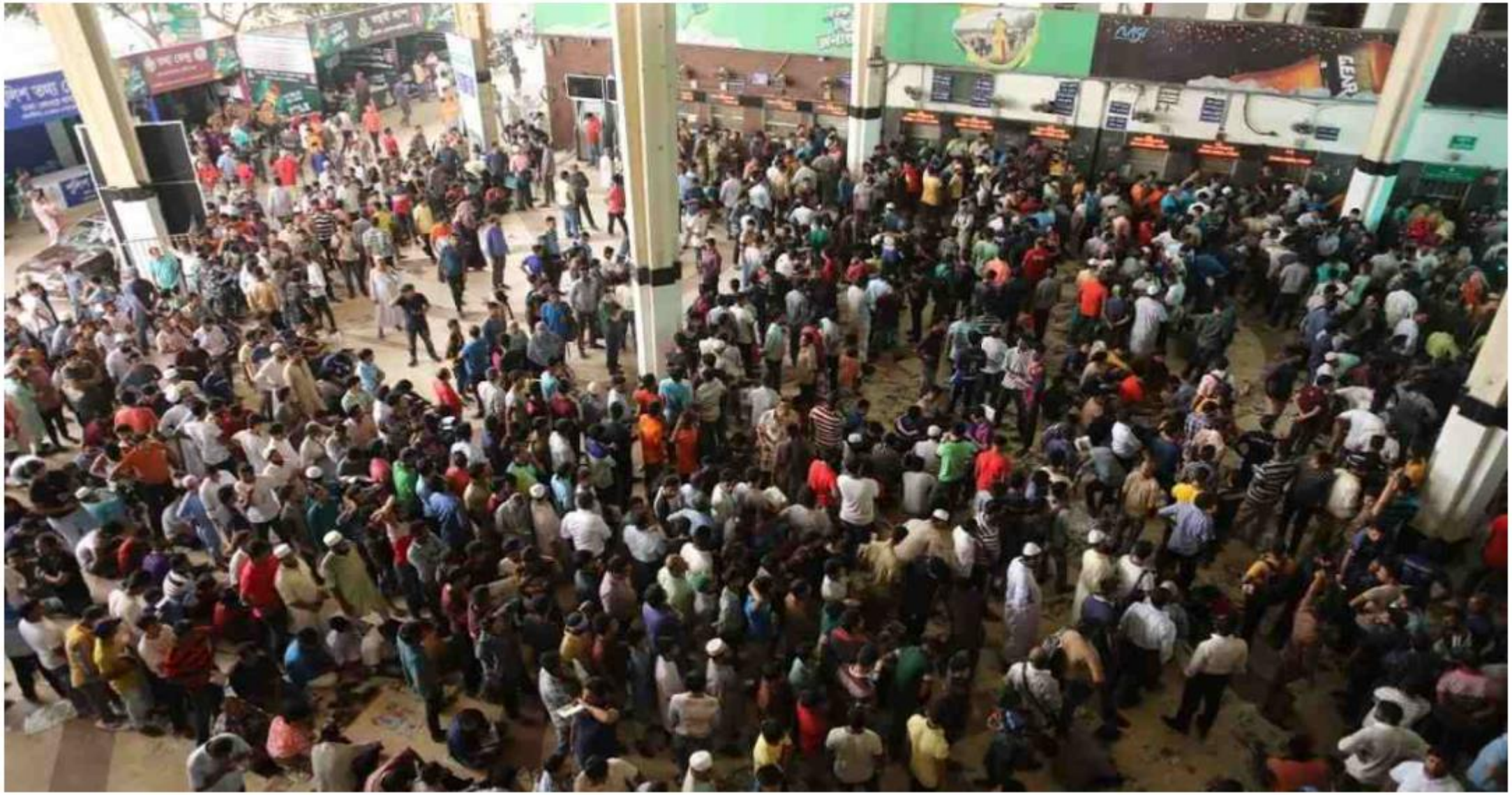
Problem solving: You may be provided with a real case and asked to analyze the case and suggest a potential solution. You must explain all the steps you suggest to take and why.

Justification: You may be provided with statements and asked to decide correct or wrong. You must explain your justification – why do you think the statement is correct/wrong.

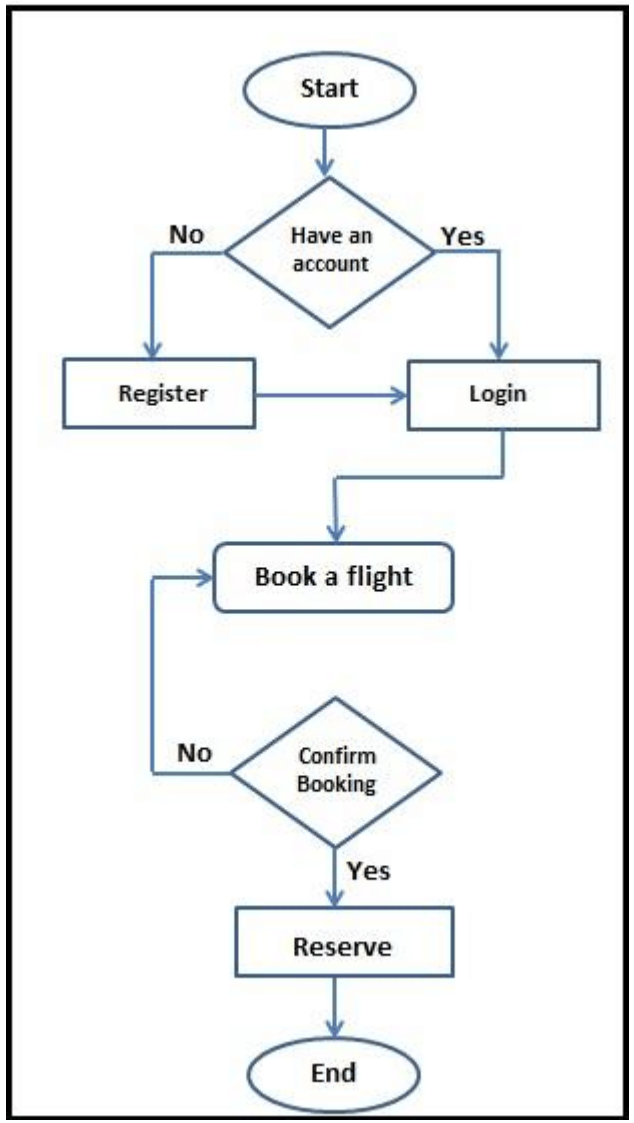
Analysis/evaluation (30%)

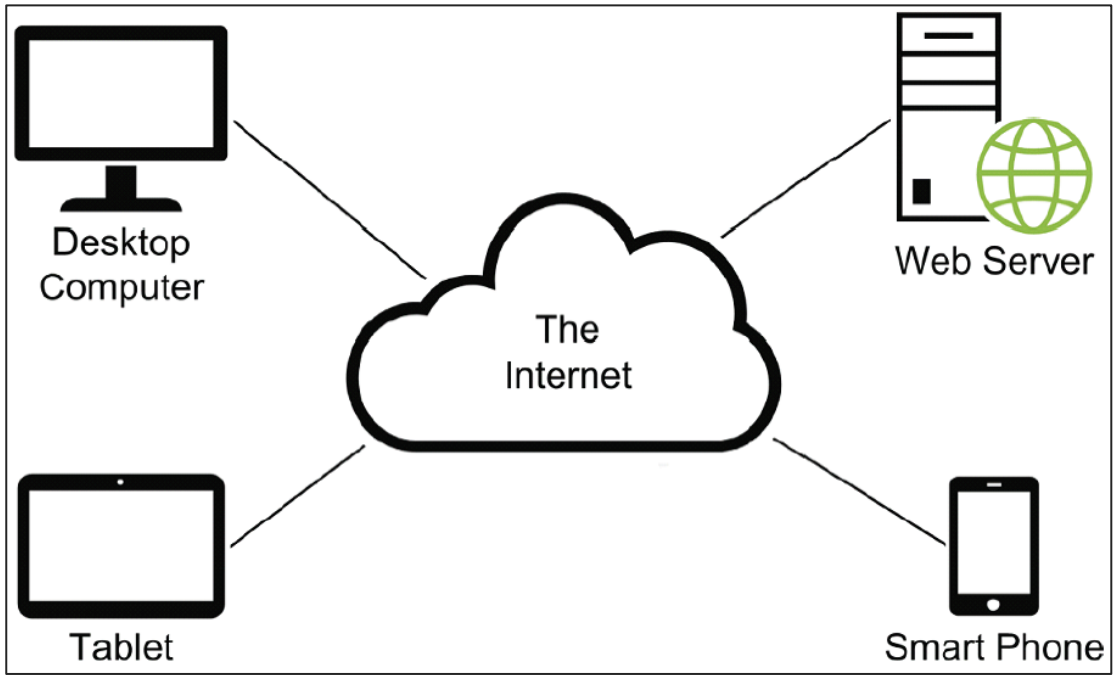
Problem solving: the case you are given here is a picture from the railway ticketing system. People stands in a long queue for longer time to get a ticket – sometime for 12-15 hours in a row. It is possible to get denied to purchase a ticket due to the unavailability of tickets of the train that s/he wants after waiting for such a long time. This creates unfair means and dissatisfactions. So, the authority contacted you as a web engineer or expert to solve the problem. How would you solve the problem? You don't need to go to the detail programming level. Just **abstract** planning level would be fine. You can use figures, flowchart, freehand drawing, and so on to demonstrate your prescribed steps. Please don't forget to add proper explanations to your steps and assumptions.

Analysis/evaluation (30%)



Analysis/evaluation (30%)





Analysis/evaluation (30%)

Justification:

1. "It is recommended that developer should not use **
** tag for making space in webpages."

Answer: Correct. Explanation.

2. "Structured interviews can be used for understanding what people want from a digital interaction solution and allows interviewers to follow-up on unexpected responses to explore new topics."

Answer: Wrong. Explanation.

Coding (40%)

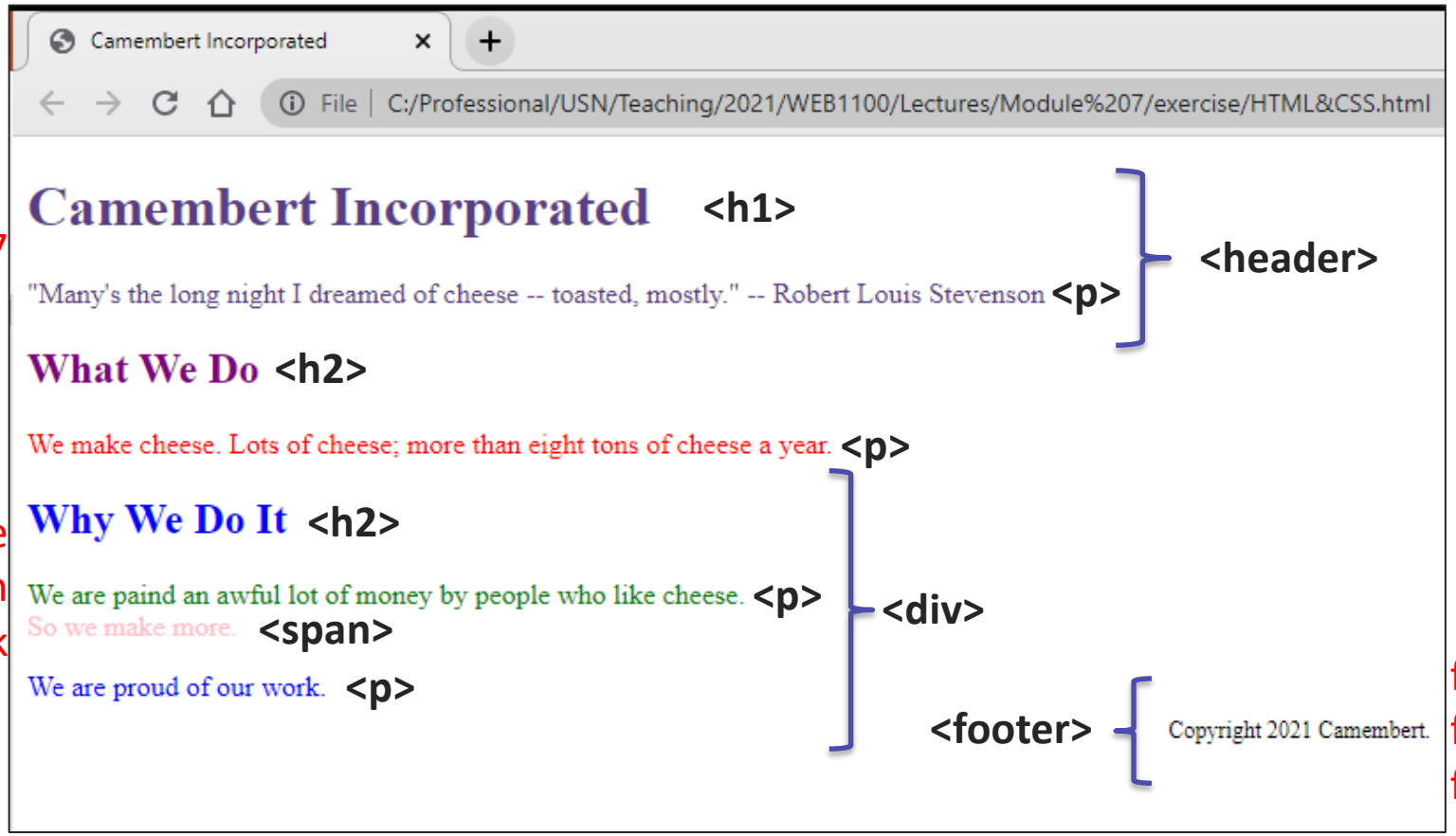
Write Code:

Write HTML and CSS code to generate the following output.

header_color: #593d87

h2_color: purple
p_color: red

div_color: blue
p_color: green
span_color: pink



footer_font-size:9pt
footer_ line-height:12pt
footer_ text-align: right

Coding (40%)

Instructions:

- Types of html elements are mentioned inside the window, next to the content in angular brackets (<>).
- Style rules are mentioned outside the window with the following convention: **element_properties:value**. For example, the content of ***<h2>*** should be displayed in ***purple*** if it is instructed as ***h2_color:purple***
- Style rules for the header and the footer sections should be coming form an external CSS file. The name must be **ExCSS.css**
- Style rules for the middle section should be defined internally.
- Style rules for the final section should be defined inline.
- The HTML document should be named **HTML&CSS.html**
- The webpage should be titled as **Camembert Incorporated**

HTML&CSS.html

```html
<!DOCTYPE html>
<html>
    <head>
        <title> Camembert Incorporated </title>
        <link rel="stylesheet" type="text/css" href="ExCSS.css"/>
        <style type="text/css">
            p.subheader{
                color: red;
            }
            h2.subheader{
                color: purple;
            }
        </style>
    </head>
    <body>
        <header>
            <h1>Camembert Incorporated</h1>
            <p>
                "Many's the long night I dreamed of cheese -- toasted, mostly."
                -- Robert Louis Stevenson
            </p>
        </header>
            <h2 class="subheader">What We Do</h2>
            <p class="subheader">
                We make cheese. Lots of cheese; more than eight tons of cheese
                a year.
            </p>
        <div style="color:blue">
            <h2>Why We Do It</h2>
            <p style="color:green">
                We are paind an awful lot of money by people who like cheese. <br>
                <span style="color:pink">So we make more.</span>
            </p>
            <p>
                We are proud of our work.
            </p>
        </div>
        <footer>
        Copyright 2021 Camembert.
        </footer>
    </body>
</html>
```

ExCSS.css

```css
footer{
        font-size: 9pt;
        line-height: 12pt;
        text-align: right;
}

header{
        color: #593d87;
}
```

Coding (40%)

Find output of this code with following inputs:

Submit the form

a) with no values entered.

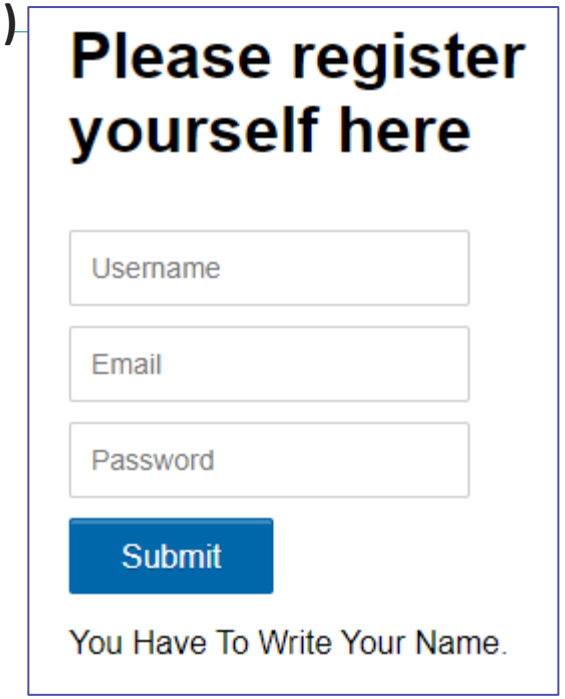
b) without @ sign for email address

c) password is less than 4 character

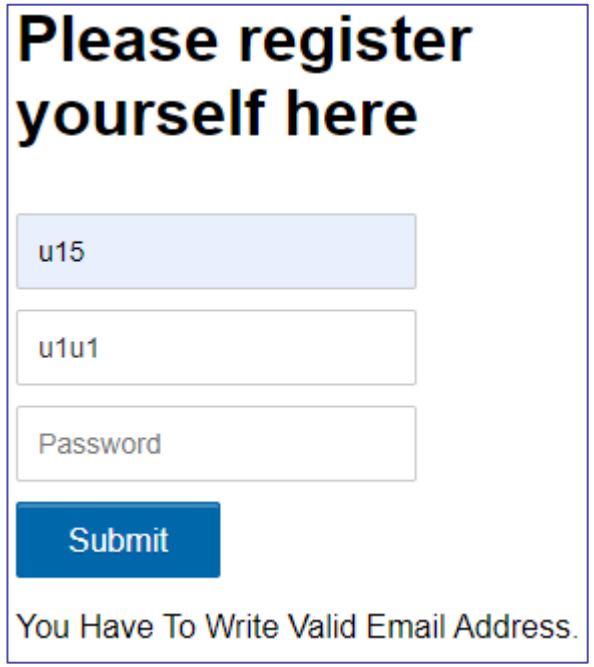
```
<html>
    <head>
        <title>Log In</title>
        <link rel="stylesheet" href="style.css" />
        <script type="text/javascript">
            function validate()
            {
             var error="";
             var name = document.getElementById( "name_of_user" );
             if( name.value == "" )
             {
              error = " You Have To Write Your Name. ";
              document.getElementById( "error_para" ).innerHTML = error;
              return false;
             }
             var email = document.getElementById("email_of_user");
             if( email.value == "" || email.value.indexOf( "@" ) == -1 )
             {
              error = " You Have To Write Valid Email Address. ";
              document.getElementById("error_para").innerHTML = error;
              return false;
             }
             var password = document.getElementById( "password_of_user" );
             if( password.value == "" || password.value.length < 4 )
             {
              error = " Password Must Be More Than Or Equal To 4 Digits. ";
              document.getElementById( "error_para" ).innerHTML = error;
              return false;
             }
             else
             {
              return true;
             }
            }
        </script>
    </head>
    <body>
        <div class="form">
            <h1>Please register yourself here</h1>
            <form method="POST" action="" onsubmit="return validate();">
                <input type="text" name="username" placeholder="Username" id="name_of_user">
                <input type="text" name="useremail" placeholder="Email" id="email_of_user">
                <input type="password" name="user_password" placeholder="Password" id="password_of_user">
                <input type="submit" name="submit_form" value="Submit">
            </form>
            <p id="error_para" ></p>
        </div>
    </body>
</html>
```

Coding (40%)

a)



b)



c)

Coding (40%)

Find and correct error(s) in code:

The following HTML document encompasses some coding error that may generate unexpected outcomes. Find those bugs and fix them to get appropriate outcomes.

```
<html>
    <head>
        <title>First Web-page</title>
    </head>
    <body>
        <h1> HTML is simple to learn </h1>
        <p> All new students are welcome to <a href="http://www.usn.no/"> USN </p>
        <br> Here you will learn a lot! </br>
    </body>
</html>
```

Grading

Score	Grade
90-100	A
75-89	B
60-74	C
50-59	D
40-49	E
00-39	F

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Thank You!

Think Green, Grow Green, Live Green