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A.Y. 2021-2022
Class: TE-ITA/B, Semester: VI
Subject: **MAD & PWA LAB**

Experiment – 8: Creating a responsive UI using jQuery mobile/material UI/ Angular UI/ React UI for Ecommerce Application

- 1. Aim:** To create a responsive UI using jQuery mobile/material UI/ Angular UI/ React UI for Ecommerce Application
- 2. Objectives:** After study of this experiment, the student will be able to
 - Learn the Essential technologies, and Concepts of PWAs.
 - Develop responsive web applications by combining AJAX development techniques with the jQuery JavaScript library.
- 3. Outcomes:** After study of this experiment, the student will be able to
 - Understand various PWA frameworks and their requirements.
 - Design and Develop a responsive User Interface by applying PWA Design techniques.

Prerequisite: HTML/ CSS/ JavaScript.

5. Requirements: Visual Studio Code, Bootstrap framework, Internet Connection.

6. Pre-Experiment Exercise:

Brief Theory:

Progressive Web Applications:

PWAs are web applications developed using a number of specific technologies and standard patterns to allow them to take advantage of both web and native app features. There are some key principles a web app should try to observe to be identified as a PWA. It should be:

1. Discoverable

2. Installable
3. Linkable
4. Network independent
5. Progressively enhanced.
6. Re-engageable
7. Responsively designed
8. Secure

Implement Responsive Design using React js:

Responsive design is a graphic user interface (GUI) design approach used to create content that adjusts smoothly to various screen sizes.

The 3 different approaches to implementing responsive design in your next React app



1. Media

- are:
- Queries
 2. Inline styles
 3. Higher Order Components

7. Laboratory Exercise

A. Program

1. Create a responsive user interface for an e-commerce application.

B. Result/Observation

1. Print out of program code and output.

Allan's Store

The International Bestseller

THINK LIKE A MONK

TRAIN YOUR MIND FOR PEACE AND PURPOSE EVERY DAY

Tiny Changes, Remarkable Results

5 MILLION COPIES SOLD

LIMITLESS

The Gold Standard for getting the maximum out of life as a human being! —WILL SMITH

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Windows Start button

03:05 11-04-2022

Allan's Store

IKIGAI

The Japanese Secret to a Long and Happy Life

JAY SHETTY

THINK LIKE A MONK

TRAIN YOUR MIND FOR PEACE AND PURPOSE EVERY DAY

James Clear

Atomic Habits

An Easy & Proven Way to Build Good Habits & Break Bad Ones

Limitless

Upgrade Your Brain, Learn Anything Faster, and Unlock Your Exceptional Life

₹300.00

₹349.00

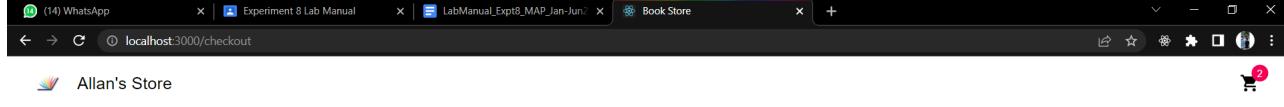
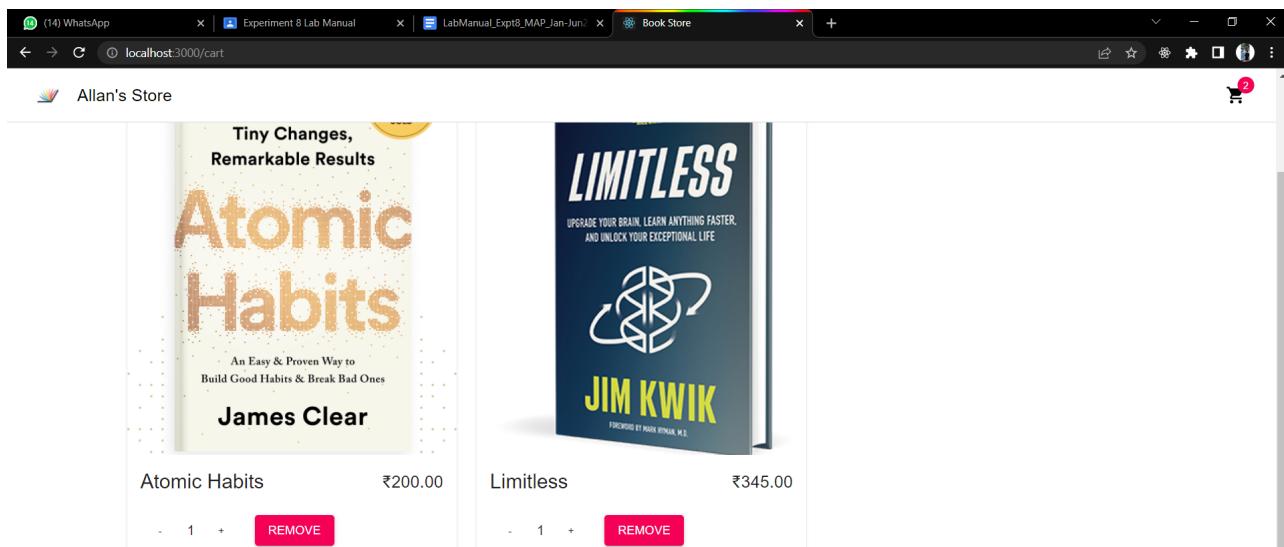
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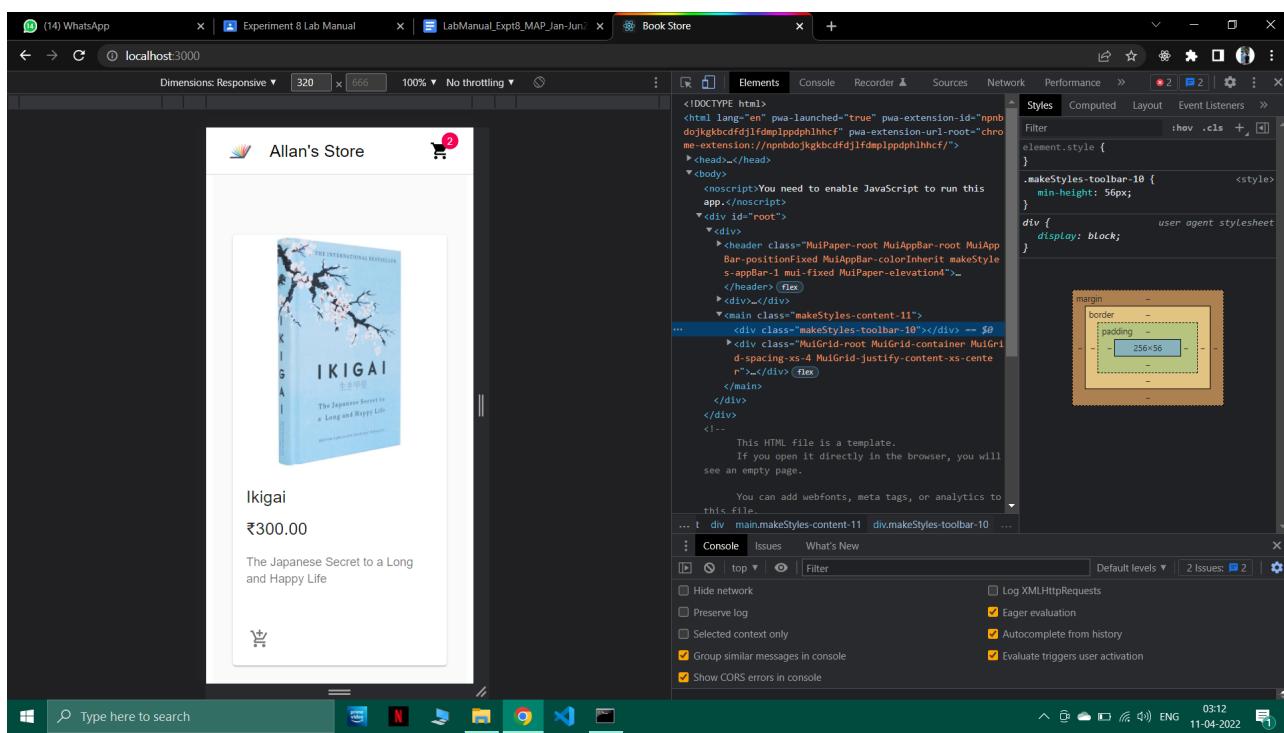
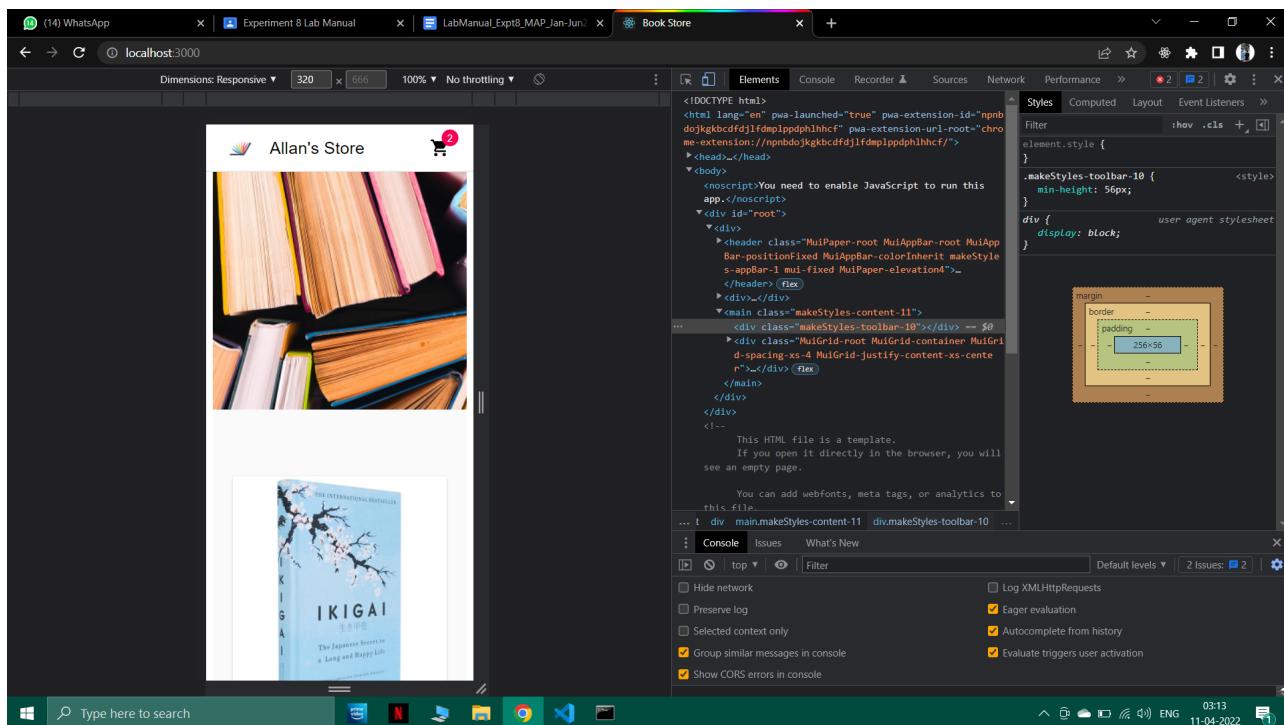
₹345.00

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Screenshot of a web browser showing a shopping cart page for "Allan's Store". The page displays a book titled "LIMITLESS" by Jim Kwik with a price of ₹345.00. The subtotal is ₹545.00, and there are "EMPTY CART" and "CHECKOUT" buttons.

The browser's developer tools are open, specifically the Elements tab, which shows the HTML structure of the page. The code includes a header with a fixed position and a main content area with a max-width of 1100px. The subtotal and total are calculated in the following manner:

```
<div id="root">
  <header class="MuiPaper-root MuiAppBar-root MuiAppBar-positionFixed MuiAppBar-colorInherit makeStyles AppBar-root-1 mui-fixed MuiPaper-elevation4">
    ...
  </header>
  <div class="MuiContainer-root MuiContainer-maxWidthLg flex">
    ...
    <div class="flex flex-column align-items-center">
      <strong>Subtotal:</strong>
      <strong>₹545.00</strong>
      <button>EMPTY CART</button>
      <button>CHECKOUT</button>
    </div>
  </div>
</div>
```

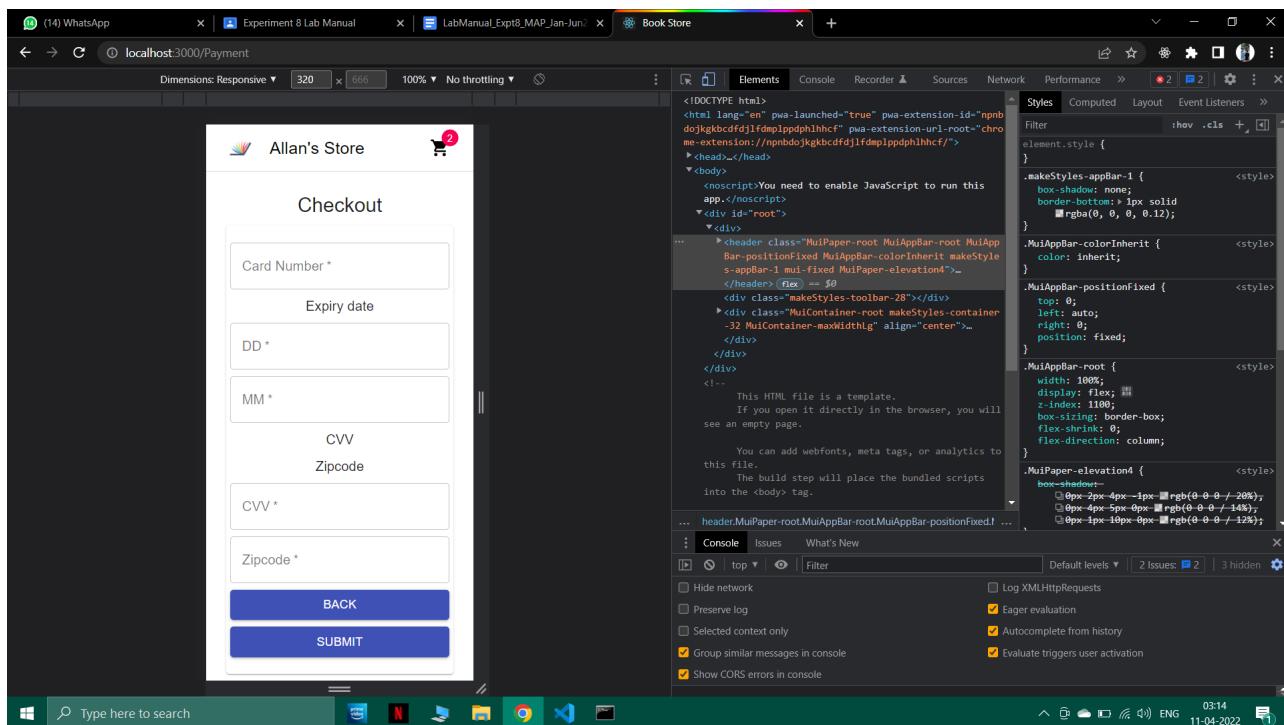
A screenshot message from OneDrive indicates that a screenshot was saved.

Screenshot of a web browser showing a shipping form page for "Allan's Store". The form includes fields for First Name, Last Name, Email, Address, Country, Zipcode, City, and State. There are "BACK" and "CONTINUE" buttons at the bottom.

The browser's developer tools are open, specifically the Elements tab, which shows the HTML structure of the page. The code includes a header with a fixed position and a main content area with a max-width of 1100px. The form fields are defined as follows:

```
<div id="root">
  <header class="MuiPaper-root MuiAppBar-root MuiAppBar-positionFixed MuiAppBar-colorInherit makeStyles AppBar-root-1 mui-fixed MuiPaper-elevation4">
    ...
  </header>
  <div class="MuiContainer-root MuiContainer-maxWidthLg align-items-center">
    <div>
      <strong>Shipping Form</strong>
      <br/>
      <input type="text" placeholder="First Name *"/>
      <input type="text" placeholder="Last Name *"/>
      <input type="text" placeholder="Email *"/>
      <input type="text" placeholder="Address *"/>
      <input type="text" placeholder="Country *"/>
      <input type="text" placeholder="Zipcode *"/>
      <input type="text" placeholder="City *"/>
      <input type="text" placeholder="State *"/>
    </div>
    <div>
      <button>BACK</button>
      <button>CONTINUE</button>
    </div>
  </div>
</div>
```

The developer tools also show various developer settings like Eager evaluation and Autocomplete from history.



8. Post-Experimental Exercise

A. Questions:

1. Why Responsive Design is important for web applications?
2. Differentiate between responsive design and adaptive design.

B. Conclusion:

1. Write what you have learnt in the experiment.

C. References:

1. https://www.w3schools.com/css/css_rwd_intro.asp
2. <https://developers.google.com/web/updates/2015/12/getting-started-pwa>
3. Building Progressive Web Apps, O'Reilly 2017.



Arian Rodrigues

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EXP 8 MAD & PWA Lab.

Q.8 A

Q) Why responsive design is important for web applications?

→ Responsive design is a way to put together a website so that it can automatically scales its content & elements to match the screen size on which it is viewed. It keeps images from being larger than the screen width, & prevents visitors on mobile devices from needing to do extra work to read your content.

The ultimate goal of responsive design

is to avoid the unnecessary resizing,

scrolling, zooming or panning that occurs

with sites that have not been optimized for different devices

2) Responsive design

1) It adjusts its content & width according to the device

Adaptive design

1) According to the device it loads the content of the web page that was already designed.

2) Have to create single layout of the page

3) Have to create six different page



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3) SEO friendly

3) challenging for
SEO because ~~SEO~~
Search engines have
a difficult time
appreciating the
same content on
multiple sites.

B) Conclusion

In this experiment we learnt
how to create responsive e-commerce
application. We also comprehend
various PWA frameworks & their requirements.

