Department of Computer Science and Engineering
Academic Year: 2025 - 2026 (Odd Semester)

Name of the Faculty member : Mrs.S.Shunmuga Priya, AP/CSE
Degree, Semester & Branch, Sec : B.E, V & CSE – 'B'
Course Code & Title : CCS375 WEB TECHNOLOGIES
Date & Time : 29.10.2025 & 11.05 AM to 11.30 AM

Innovative Practice VI - Description

- Unit / Topic: Unit V / Web application framework tools
- Course Outcome: CO5
- Topic Learning Outcome : TLO5b
- **Activity Chosen: Flipped Class Room**

Justification

- This innovative practice was assigned to transforms students from passive listeners into active learners. By engaging with video lectures and reference materials before class, students gain foundational knowledge at their own pace, catering to diverse learning styles and allowing for better comprehension of complex concepts.
- The use of a gamified quiz through Kahoot further motivates students, encourages participation, and provides instant feedback on their understanding. This combination of pre-class preparation, in-class active engagement, and interactive assessment promotes deeper conceptual understanding, improves technical proficiency in web application frameworks, and enhances overall student engagement and confidence.

Time Allotted for the Activity: 25 Minutes

Implementation:

- In this Flipped class room activity, Students were provided with reference materials and the link of e-resources related to Web Application Framework Tools through canvas before 5 days , as shown in figure1. They were instructed to explore core concepts such as framework features, architecture, and components outside the classroom at their own pace. This enabled student to come prepared with basic understanding before active learning in class.
- During the class session, students actively participated in interactive discussions based on the concepts learned from the pre-class materials. Real-time examples, demonstrations, and clarification of doubts were carried out to enhance their practical knowledge. Students collaborated and engaged in peer interactions to reinforce understanding.

- To assess their learning and make the session more engaging, an interactive quiz was conducted using the Kahoot platform. This gamified assessment encouraged healthy competition, immediate feedback, and improved student involvement, while helping to identify areas needing further reinforcement as shown in figure 2.

CO – PO / PSO mapping:

CO →	**PO1**	**PO2**	**PO3**	**PO9**	**PO10**	**PO11**	**PSO1**
CO5	3	3	3	1	2	2	3

PO-PSO Mapped:

Innovative Practice	**PO1**	**PO2**	**PO3**	**PO9**	**PO10**	**PO11**	**PSO1**
	3	3	3	1	2	2	3
Justification for Correlation	Students understand and recall core technical concepts of web frameworks, their features, architecture, and components through pre-class self-learning resources..	Students analyze different framework components during interactive sessions and clarify doubts to strengthen conceptual understanding.	Students apply learned concepts to web application development discussions and demonstrations, enhancing real-time problem-solving skills.	Students participate in peer-based learning and discussions collaborating in teams, improving teamwork and task sharing.	Students communicate their ideas clearly during class activities and respond effectively during quiz and discussions.	Self-paced pre-class learning promotes continuous learning habits and independent knowledge acquisition.	Strengthens practical understanding of web development frameworks and tools which directly supports software application development skills.

- Images / Screenshot of the practice:

REACT

- React is a free and open-source front-end JavaScript library for building user interfaces based on components.
- It is maintained by Meta and a community of individual developers and companies.
- React can be used to develop single-page, mobile, or server-rendered applications with frameworks like Next.js.
- React is a JavaScript-based UI development library.
- Although React is a library rather than a language, it is widely used in web development

Why React?

React's popularity today has eclipsed that of all other front-end development frameworks. Here is why:

- Easy creation of dynamic applications
- Improved performance
- Reusable componenents
- Unidirectional dataflow
- Small learning curve
- It can be used for the development of both web and mobile apps
- Dedicated tools for easy debugging

ReactJS Advantages

1. React.js builds a customized virtual DOM. Because the JavaScript virtual DOM is quicker than the conventional DOM, this will enhance the performance of apps.
2. ReactJS makes an amazing UI possible.
3. Search - engine friendly ReactJS.
4. Modules and valid data make larger apps easier to manage by increasing readability.
5. React integrates various architectures.
6. React makes the entire scripting environment process simpler.
7. It makes advanced maintenance easier and boosts output.
8. Guarantees quicker rendering
9. The availability of a script for developing mobile apps is the best feature of React.
10. ReactJS is supported by a large community.

Limitations

1. Only addresses the app's angle and distance; as a result, additional techniques must be selected if you want a full collection of development tools.
2. Employs inline scripting and JSX, which some programmers might find uncomfortable.

Features of React

- Re-usability
- Nested components
- Render method
- Passing properties

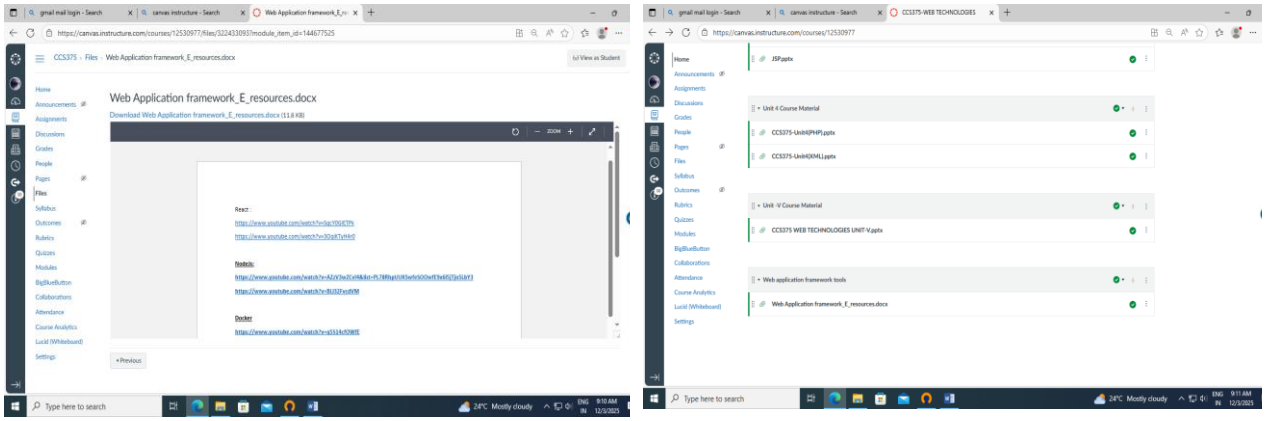

Figure 1

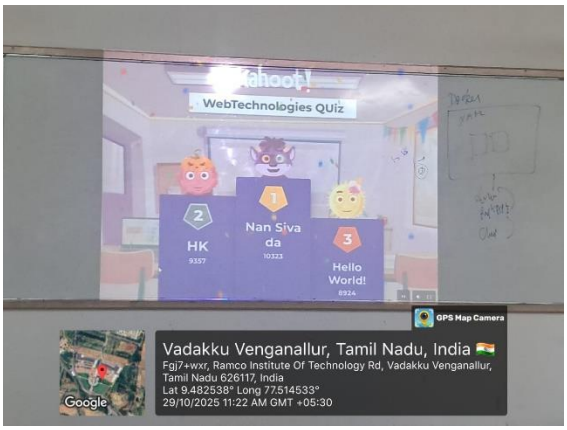

Figure 2
Flipped Class Room Activity

Reflective Critique

Learning Outcomes

- Students demonstrate the ability to learn core concepts independently through pre-class materials.
- Students apply theoretical knowledge to develop and implement web applications using framework tools.
- Students collaborate effectively, participate in discussions, and share knowledge with peers.
- Students gain confidence and engagement in using web development tools and frameworks.

Benefits of the Practice

- Students learn at their own pace, revisiting complex topics as needed.
- Class time becomes interactive, promoting active participation and engagement.
- Focus on applying and analyzing concepts leads to deeper understanding.
- Recorded lectures support absent students and accommodate diverse learning needs.

Feedback of the Practice

- This activity Promotes active, student-centered learning and deeper conceptual understanding.
- Enhances practical skills in web development and problem-solving.
- Encourages collaboration, peer learning, and effective communication.

Challenges Faced in Implementation

- Students' lack of preparation before class sometimes hampered smooth participation.
- Increased screen time for reviewing pre-class materials led to fatigue for some learners.
- Significant effort and time were required by instructors to create quality videos and resources.
- Limited access to devices or internet for some students created inequality in learning opportunities.

References

- https://Flipped Classrooms | The Derek Bok Center for Teaching and Learning
- https://Flipped Learning: Innovative Teaching Explained
- https://Flipped Classrooms | What is a Flipped Classroom? | Study.com
- https://www.extramarks.com/blogs/teachers/flipped-classrooms/