



WEB APPLICATION PROJECT – MICROSOFT TEAMS CLONE

Microsoft Engage 2021





Hello!

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Code is available on github -> <https://github.com/unof1harshit/Video-chat-app>



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A cluster of decorative hexagonal icons in various shades of blue and cyan. The icons include a lightbulb, a thumbs up, a network node, a smartphone, a magnifying glass, a gear, and a speech bubble.

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Project Idea

Project Idea

- ◇ **Microsoft team clone** : One mandatory functionality - a minimum of two participants should be able connect with each other to have a video conversation.
- ◇ The web app comprises of different meeting rooms with its unique ids respectively.
- ◇ The web app should allow user to make a new meeting as fast as possible.
- ◇ The web app should be integrated with real-time chat with different users.
- ◇ The web app should consist of Todolist, which should contain topics of discussion of meeting.
- ◇ The web app should be user friendly and is compatible with different browser.
- ◇ The web app should allow user to authenticate via google authentication.
- ◇ The web app should store user data in database.

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Approach

Approach

- ◇ The methodology used for the product is agile.
- ◇ The Scrum team structure includes a product owner, a Scrum master and the development team. To adapt Scrum for individuals, I would need to fulfill the responsibilities typically handled by each of these roles.
- ◇ **Product owner** –
 - ❑ As a product owner, I clearly defined my end product. Identify features and requirements, and record these in clear detail for later reference.
 - ❑ As a Product owner my ultimate goal is to implement mandatory functionality along with extra other features.
- ◇ **Scrum master** –
 - ❑ As a Scrum master, I removed all roadblocks by taking a hard, fair look at my work.
 - ❑ I planned my process and created reasonable goal at each sprint.
- ◇ **Development team** –
 - ❑ Being own as development team, performed every task individually and keeping records throughout the sprint to make process easier.

Roadmap



Adapting the Agile Scrum Process

◇ Planned my sprint –

- ❑ Dedicated time to plan my project.
- ❑ Instead of 2 week sprint, I decided to implement 1 week sprints.
- ❑ I acted as the product owner to define the product requirements, as well as the Scrum master and development team to plan my process and create reasonable goals for each sprint.

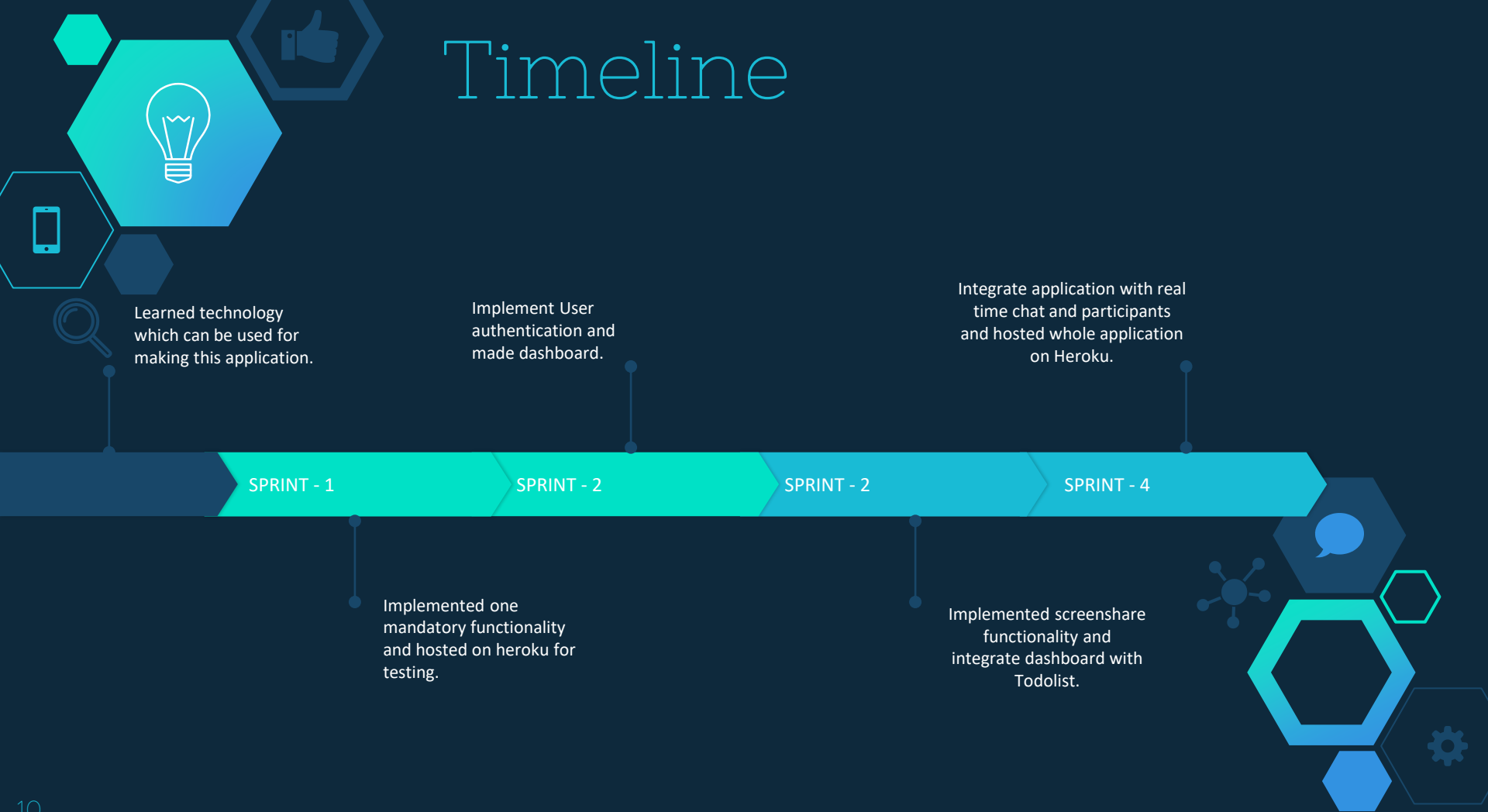
◇ Conducted daily Scrums –

- ❑ Schedule time each day to review my previous day's work to identify successes and pitfalls.
- ❑ Acted as a Scrum master to brainstorm solutions for any problems I identified.
- ❑ At each Scrum, I planned what I will do in upcoming days.

◇ Reviewed my Sprint –

- ❑ At the end of the one week, thought like a development team to consider the flaws and wins of my sprint process.
- ❑ As a product owner, evaluated how closely the results align with the outlined requirements (mandatory features).

Timeline



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Technologies Used

Technologies Used

- ◇ JavaScript – Programming language
- ◇ jQuery – JavaScript library
- ◇ Bootstrap – Potent frontend framework
- ◇ MongoDB – Document database
- ◇ Express – Back-End Framework
- ◇ Node.js – JS Runtime Environment
- ◇ Socket.IO – Enable real-time, bidirectional and event-based communication (build on the top of websocket)
- ◇ Passport – Authentication middleware for Node.js

A series of hexagonal icons in various shades of blue and teal are arranged along the left edge of the slide. The icons include a lightbulb, a thumbs-up, a network of nodes, a smartphone, a magnifying glass, a gear, and a speech bubble. A large, central hexagon with a blue-to-teal gradient contains the number '4'.

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Pros and Cons of Technology used

Pros and Cons of Technology used

Pros:

- ◇ Mongo is easier to work with and better suited to the needs of web application than relational databases.
- ◇ Node can scale better and more easily than most of the competition(Django), and allows to use the same language on the backend that is done on the frontend (JavaScript).
- ◇ Node provide high performance for real-time application.
- ◇ Socket.IO works for all browsers, even in cross-domain scenerio.

Cons:

- ◇ MongoDB require high memory usage, some of the records are lost in MongoDB and it is not reliable.
- ◇ Node.js invites a lot of changes due to unstable API.

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Lessons learned

Lessons learned

- ◇ Learned various technologies such as Mongodb, Express, Node.js, Socket.IO, Passport, jQuery etc. because this is my first web application project.
- ◇ Learned Ubuntu, Git, Heroku etc.
- ◇ There were various challenges in configuring peer to peer connection with unique id rooms.
- ◇ There were some design challenges in meeting room like organising chat and participation.
- ◇ There were various challenges in authorization via passport and storing data mongoDB atlas.
- ◇ There were various challenges in emitting user and participant data in meeting room from server.
- ◇ Many more functionality are yet to be implemented.


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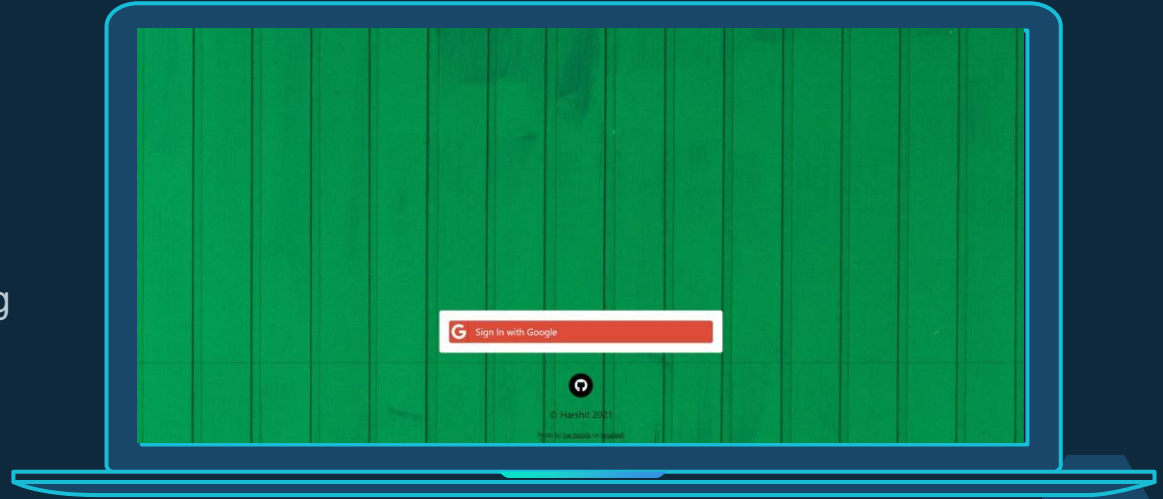
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User Authentication

- ◇ This is a homepage
- ◇ It directs user to authentication page.



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- ◇ This is a Authentication page
 - ◇ After google authentication it directs user to its corresponding dashboard.
 - ◇ This authentication is made using passport strategy with google using the Oauth 2.0 API.

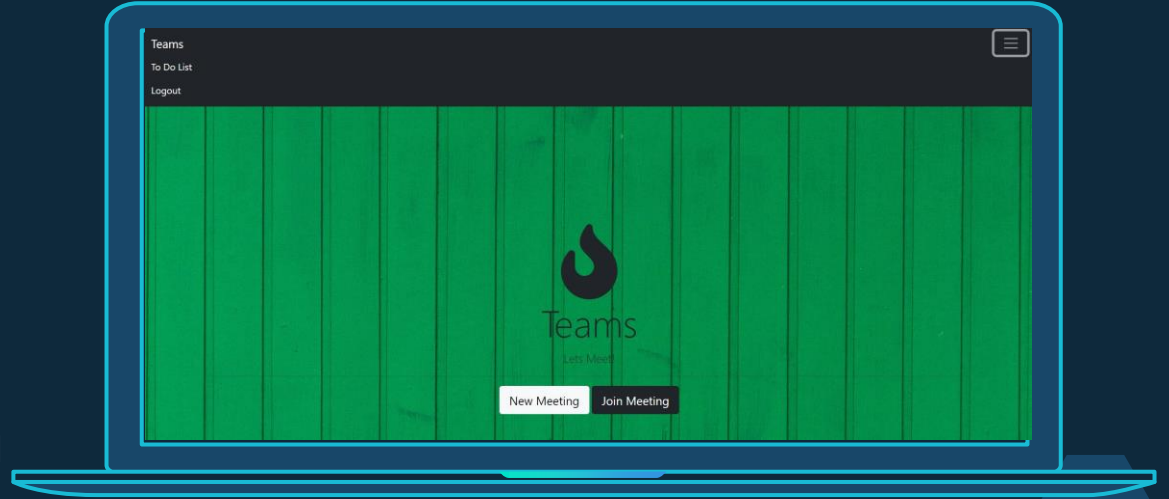


A collection of decorative hexagonal icons in various shades of blue and cyan. The icons include a lightbulb, a thumbs up, a network of nodes, a smartphone, a magnifying glass, a gear, and a speech bubble. The central hexagon is the largest and features a white number 7.

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Dashboard

- ◇ This is a dashboard of user.
- ◇ After google authentication it directs user to its corresponding dashboard.
- ◇ In dashboard, we can host new meeting or join other meeting via link.
- ◇ Dashboard contains Todolist and logout button in navigation bar.



A decorative pattern of hexagons in various shades of blue and teal. Some hexagons contain icons: a lightbulb, a thumbs up, a network of nodes, a smartphone, a magnifying glass, a gear, and a speech bubble. The pattern is arranged in a cluster on the left side of the slide.

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Meeting room

- ◇ This is a Meeting room
- ◇ It consist of video, audio, chat, participant, screenshare and leave meeting functionality.
- ◇ Leave meeting directs user back to its dashboard.



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Participants and Chat

- ◇ This is a participants window in a meeting.
- ◇ It consists of name of participants and shows number of participant in room.
- ◇ Username of users are from their google username.



- ◇ This is a chat window in a meeting.
- ◇ It consists of user and their corresponding chat.
- ◇ Username of users are from their google username.



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Demo



Thanks You!

