NED UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
Department of Software Engineering
FYP Progress Report

Reporting Period: From Janurary 2020 to Feburary 2021

Project Title: TexChain

Group Members:

1. Javeria Zafar SE-040 (Group Lead)
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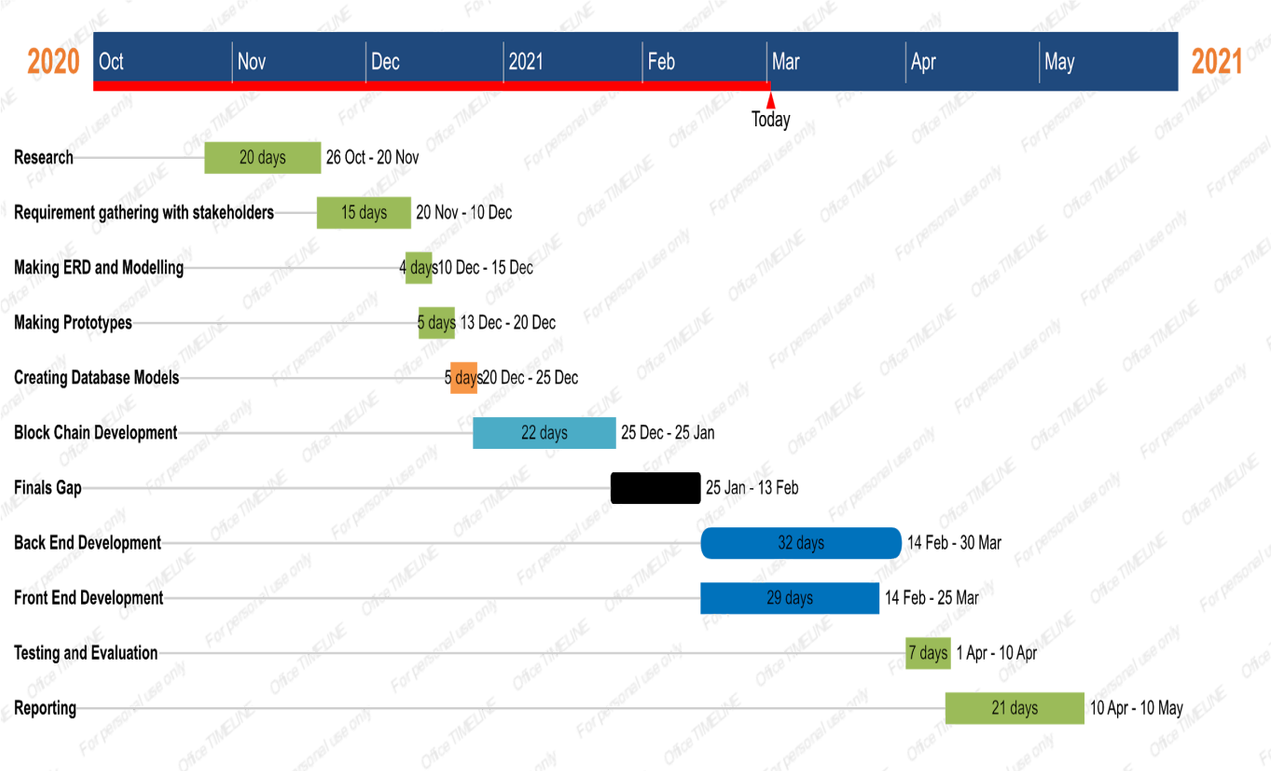
Brief Project Overview:

People especially millennial tend to distrust the spurious claim of sustainability and so consumers can make or break any event. Huge firms selling point has now become the transparency in their supply chain. In this project we add the blockchain technology. As reported by Forbes, Blockchain implementation will facilitate more intelligent business processes because the trust would be distributed, and the processes would be truly transparent. Brands will have to think ahead and position themselves to integrate with the technology. That's why brands and manufacturers need to give their consumers what they demand. And consumers are demanding transparency and sustainability to continue with brands. Many apparel brands are transforming their business model from linear to circular. They are minimizing their waste and disposing of them properly. Moreover it helps in managing the stocks for the suppliers.

Current Status:



- **Accomplishments**

  - After further meetings with the stakeholders we made further revisions in the database and finalized it.
  - Moreover we made another revision in the tools we were to use in project and moved our front-end from Reactjs to NEXTjs.
  - After sketching out the main design for the front-end we started to make our first screen that will be admin panel through which we can create our three main users of the supply chain.
  - Concluding the design phase, we moved to accomplish the targets set for the front-end development, backend logic and blockchain development in parallel
  - Started working on the business logic and completed the blockchain development after multiple iterations.
  - Integrated our blockchain contract with the front-end so to create the user and save details on-chain.
  - Simultaneously started working on generating the rest APIs through which the Front-end and back-end components communicate the data
  - To incorporate the latest industrial practices and agile processes, we have developed our architecture using NEXTJS that implements our routing logic, react server to serve JS files, Nodejs server to serve the REST API requests from the react application and MYSQL that holds our application data.
  - Moreover to make our database fault tolerant we plan to migrate our database onto amazon database to connect Amazon Relational Database Service (Amazon RDS) DB instance that's running MySQL by using MySQL Workbench

- **Problem Areas (Challenges):**

  - Since we were studying blockchain for the first time we had some problems in finding the correct path to follow in the beginning, later on we were guided by our internal and external supervisor.
  - The key software quality assurance parameters including scalability, performance, efficiency and maintainability of code depends on an effective and efficient design of the database. It lays the foundation of a mature product that is resistant to future bottlenecks in the code. Therefore, designing a database in accordance with aforementioned parameters that delivers our solution to the users effectively was a challenging task. Moreover, our decentralized and distributed module pose an additional challenge and complexity to our design and process flow. Gratefully, with the team effort, our supervisors' cooperation, meetings held with domain experts and literature reviews, we acquired the required domain knowledge to cater challenges related to database design.
  - We had some problems in deciding which language and framework can easily be implemented in our project however we were able to find that we can implement with the help of node.js and Nexjs.

Issues:

Technical Issues

- Since we were new to this domain of blockchain we were unsure to whether use private blockchain or public blockchain thus we started learning the private blockchain which took a lot of time but when we reached out to it's domain experts we got the view to use public blockchain for our project.
- As the blockchain technology is growing and maturing with the passage of time, there is limited support and material available for our domain. We faced technical issues in designing the business logic of creating and transferring of digital identities on blockchain alongside its integration with our database system. However, with further research & development and review meetings, we resolved these issues.
- Had to switch over to node.js from asp.net core due to its performance and huge community.

Management Issues

- So far, we have not led into any managerial issues as we have conducted our tasks in planned agile methodology sprints using a project management software called Trello according to the roles specified. Along with that, we are using a version control system, GitHub, so we do not face any issues in exchange of code.

Comments of the Internal Advisor:

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Marks (out of 20): _____

Date: _____ **Signature (Internal Advisor): _____**