Teach4Service
Empowering Military Families

Gladys Adjei, gxa151130@utdallas.edu, Christian Larsen, cpl150330@utdallas.edu, Abrar Syed, aas131630@utdallas.edu
Mame Mbaye, mxm157530@utdallas.edu, Darren Squires, darren.e.squires@gmail.com, Kelly Loter, kfloter@gmail.com
Steve Denney, sdenney@marquedia.com, Dr. Richard Min, Miguel Razo mrazo@utdallas.edu

CS 4485 / Fall 2017
Department of Computer Science
Erik Jonsson School of Engineering & Computer Science
The University of Texas at Dallas
Richardson, TX 75080, USA

Abstract
The goal of our project was to create a platform that links students and parents to tutors. The proceeds from this will go to help the spouses of US Military service people fine good paying jobs, in addition to helping the children of these families obtain quality tutoring. Thus, creating a synergistic environment for all parties to benefit. Our team’s solution combined an online web portal and the similar ideals to existing solutions (ex. UBER), but optimized for a mentorship program.

In the end, we created a basic web portal that facilitates the scheduling of tutoring sessions and host the lesson via web server. Additionally, there is an admin sub-application that can authorize mentors and manage valid subjects for tutoring. Utilizing RESTful API ideologies, the current project has the potential to be expanded and incorporated additional platforms, such as phone or tablet specific applications.

Results
Teach4Service is a web-based application to facilitate the searching and hiring of tutors. The application allows users to register themselves as either students, free agent tutors, or parents managing a number of students. Students may then use the application to search for, and set up appointments with tutors and even attend tutoring sessions all within the app.

User Interface
• written with web technologies including AngularJS, HTML, CSS, SCSS, Bootstrap, and JavaScript
• preprocessed and bundled together with Webpack
• Provides great look and feel
• Allows smooth and easy navigation of web application

Backend
• written in Java Includes using the Dropwizard framework
• web api which client side makes calls to
• Hibernate for ORM
• ensures that the application can be run on nearly any server operating system or architecture, as well as maintain reasonable response times under high load

Video Streaming
• Utilizes WebRTC
• peer-to-peer connection primarily used for streaming voice and video between users
• TokBox OpenTok platform was leveraged to provide this functionality at a low implementation cost

Architecture

Impact
Our project’s impact facilitates the connection of tutors and students by creating an online web based platform with easy access. The Teach4Service application allows students, parents, and teachers from all over the globe easy access to a video conference session with a built-in scheduling tool. This allows for easy and safe lines of communication between all parties.

Tutors
• Not constrained by location
• Remote locations
• Having to move often
• Creates a source of work for tutors that would otherwise have none
• Allows rapid prototyping of Internet of Things devices

Students
• Access to tutors
• Easy online access from School, Library, or Home
• Able to quickly view tutors that can help in your area of study
• Subsidized cost for children of low income or military families

Parent
• Unified location for the whole family
• Able to research tutors by their reviews

Metrics
Our main performance metric was the adherence to our defined scope and a list of user stories provided by Marquedia which addressed the functional requirements of this project. The requirements in the user stories were categorized into Admin, Student, Parent, and Tutor functionalities.

Overall in this first version of the program, below were the approximate percentages of the user stories our team were able to meet in the semester period:

Admin use cases: 60%. We were able provide functionalities where admin could manage tutors, subjects, and other admin users
Student use cases: 60%. We were able provide functionalities where student could find and register sessions with tutors, see their upcoming and past sessions, manage the session requests they send out, and finally have a video session with their tutors
Parent use cases: 60%. We were able provide functionalities where parent could manage the students they have under their account, find and register sessions with tutors for their students, see the students’ upcoming or past sessions, and manage session requests they send out for their students
Tutor use cases: 60%. We were able provide functionalities where tutors could manage their profile, see their upcoming and past sessions, manage the session requests they receive, and finally have a video session with their students

Summary
During the semester, our team worked on deploying a website/app that will help students everywhere to have access to tutoring session even if they cannot afford it. The work that we did will be released so that other developers can work and improve the features and functionalities for the future.

The team would like to thank Dr. Min, Dr. Razo, and our company sponsors Steve Denney, Darren Squires, Kelly Loter for their help and guidance throughout the project.