International University in Geneva

Bachelor of Science in Computer Science

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Capstone Project

Shareable

Education Platform

1. Introduction

The main goal of this application is to provide a platform that brings people together from all ages and nationalities in the search and spread of education. This peer-to-peer solution offers a possibility for anyone who feels qualified in a subject to share their knowledge and anyone who has an interest or curiosity in any subject to find someone who can satisfy their yearnings. The innovation aspect of this platform is the fact that there are no predefined courses or topics, the users will determine what they want to learn and what they want to teach. With these characteristics, Shareable will introduce a fun and exciting approach into the education market which is a crucial market for global advancement.

2. Project Scope

This platform will consist of users who can decide to teach about a topic and users who want to learn about a topic. After creating an account, the user will be able to navigate the platform freely and explore all the content available created by other users. They will be able to maintain connections with people they already know from outside the platform or as well with people they get acquainted with while utilizing this system. Using the platform, the users will have the opportunity and be incentivized by the different algorithms implemented to explore different knowledgeable areas that they previously were not aware of.

The main target audience for both uses of this platform are:

Teaching side:

- Professors who have free time and are looking to make money on the side.
- Students who feel that they dominated a subject and want to help others understand what they understand.
- Experienced professionals who are looking to achieve fulfillment through passing on their knowledge and make some money on the side.
- Retired professionals who are looking for an activity and like the educational interaction.
- Anyone who feels that they have a strong grasp of a subject and wants to share knowledge.

Learning side:

- Anyone who has an interest on a subject and would like to have an online live interaction to satiate their quench.
- Students who would like to review a subject or even just a specific topic of a subject.
- People who have curiosity about something.
- People who prefer to learn from live interaction instead of a pre-recorded video/audio.

3. Objectives

- Create a platform to join people who want to learn something with people who want to teach something.
- Offer a search mechanism that facilitates the navigation of topics.
- Create a system that motivates people to learn and to teach.
- Provide a just compensation system that incentivizes people to want to teach and justifies payment for people who want to learn.
- Make the platform entertaining and easy enough for anyone to use.
- Incentivize the usage of online learning/teaching systems.
- Target a global audience.

4. Overall Function Description

The overall function of this project is to offer any user the possibility to learn / teach any desired topic in a global scale using an online environment. The purpose is to broaden anyone's and everyone's knowledge base around the globe.

There will be **profiles** and each user can decide if they are more prone to teaching or learning. The profiles will consist of these attributes:

- **Introduced by the user:**
  - Username
  - Password
  - First name
  - Last name
  - Nationality
  - Profile picture
  - More interest in Teaching or Learning?
  - E-mail
  - Friends / acquaintances (Other users of the platform)

- **Provided by platform:**
  - Recently taught / learned
  - Subject suggestions

The objective of the **interface** will be to facilitate the navigation of the users and accelerate the process of finding whatever is desired.

- **Login page:**
  - Login
  - Interesting / motivational facts

- **Create user page:**
  - Username
  - Password
  - First name
  - Last name
  - Nationality
  - Profile picture
  - Learn/Teach preference
  - E-mail

- **Main page:**
  - Most searched topics (by day, week, month, year or all time)
  - Topics tailored to your profile
  - Connections that might interest you
  - Activities that your connections have been doing

- **Profile page:**
  - Profile picture
  - First name
  - Last name
  - Nationality (only flag)
  - Recent activities
  - More interested in teaching or learning

- **Search page:**
  - Search by name of topic
  - Most searched topics (by day, week, month, year or all time)
  - Topics tailored to your profile

- **Topic page:**
  - Description of topic
  - Estimated duration of class
  - Preferable type of class
  - Number of teaching/learning instances
  - Learn option
  - Teach option

- **Learn/Teach list of instances view:**
  - List of instances available classified by:
    - Type of class
    - Date
    - Time
    - Duration
    - Cost/Profit

- **Create learn/teach instance:**
  - Date
  - Time
  - Type of class
  - Duration
  - Price
  - Option of changing description from original topic description

- **Learn/Teach instance view:**
  - Date
  - Time
  - Type of class
  - Duration
  - Price
  - Description

- **Accepting the instance takes you to the profile that originated the instance:**
  - Name
  - Nationality
  - Learn/Teach preference
  - E-mail
  - Recent activity

The **compensation method** will predominantly focus on enabling the platform for as many people as possible.

- Types of classes:
  - **One on one** classes where full interaction will be possible (most expensive for learners)
  - **One on five** classes where interaction of the learners will be limited to asking questions with chat (medium cost)
  - **One on x** classes where there will be no immediate interaction and the teacher will only lecture on a subject (least expensive)

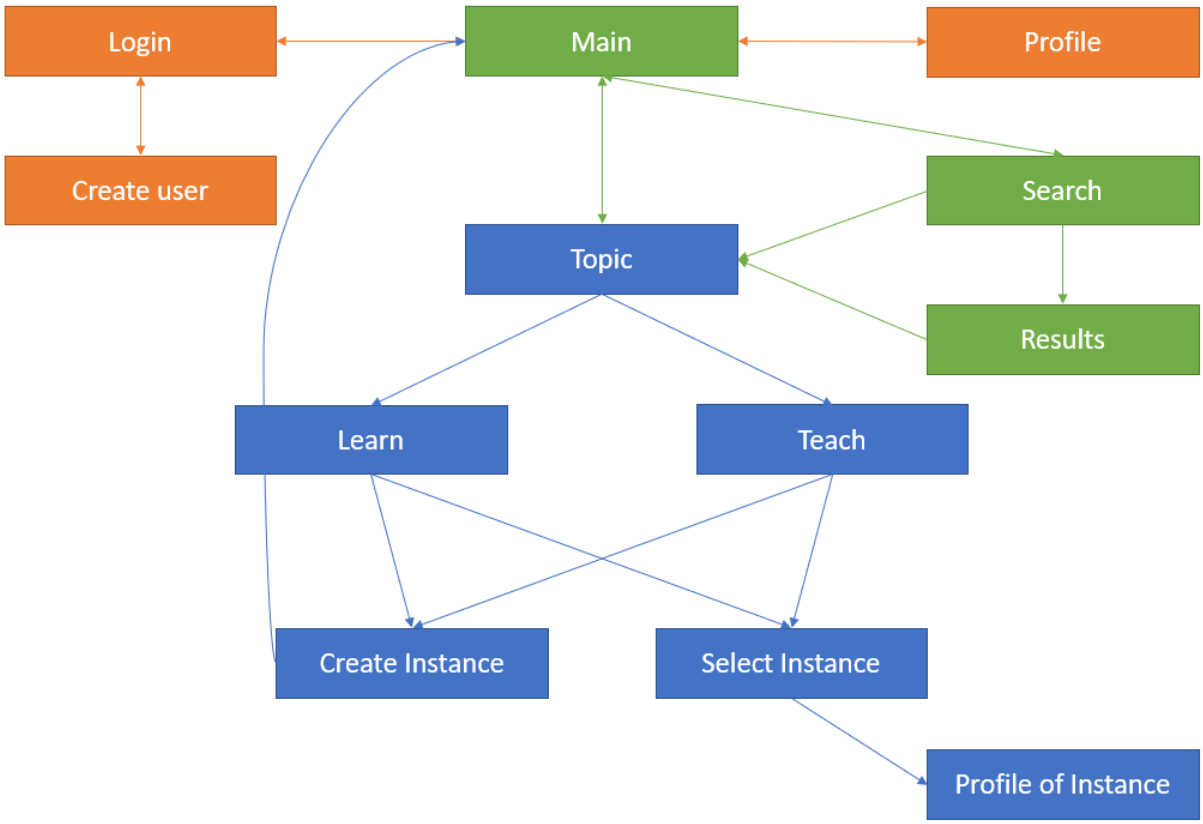
- Types of users:
  - **Trial** possibility to watch 3 classes (one on five / one on x) (class cost payed by platform)
  - **Normal** account (gets one free class per week (class cost payed by platform))
  - **Premium** account (gets three free classes per week (class cost payed by platform)) ($5 per month)

- Teacher charges:
  - One on one classes – $1 – $10
  - One on five classes – $1 – $5 per student
  - One on x classes – $1 – $2 per student
  - Possibility of free classes

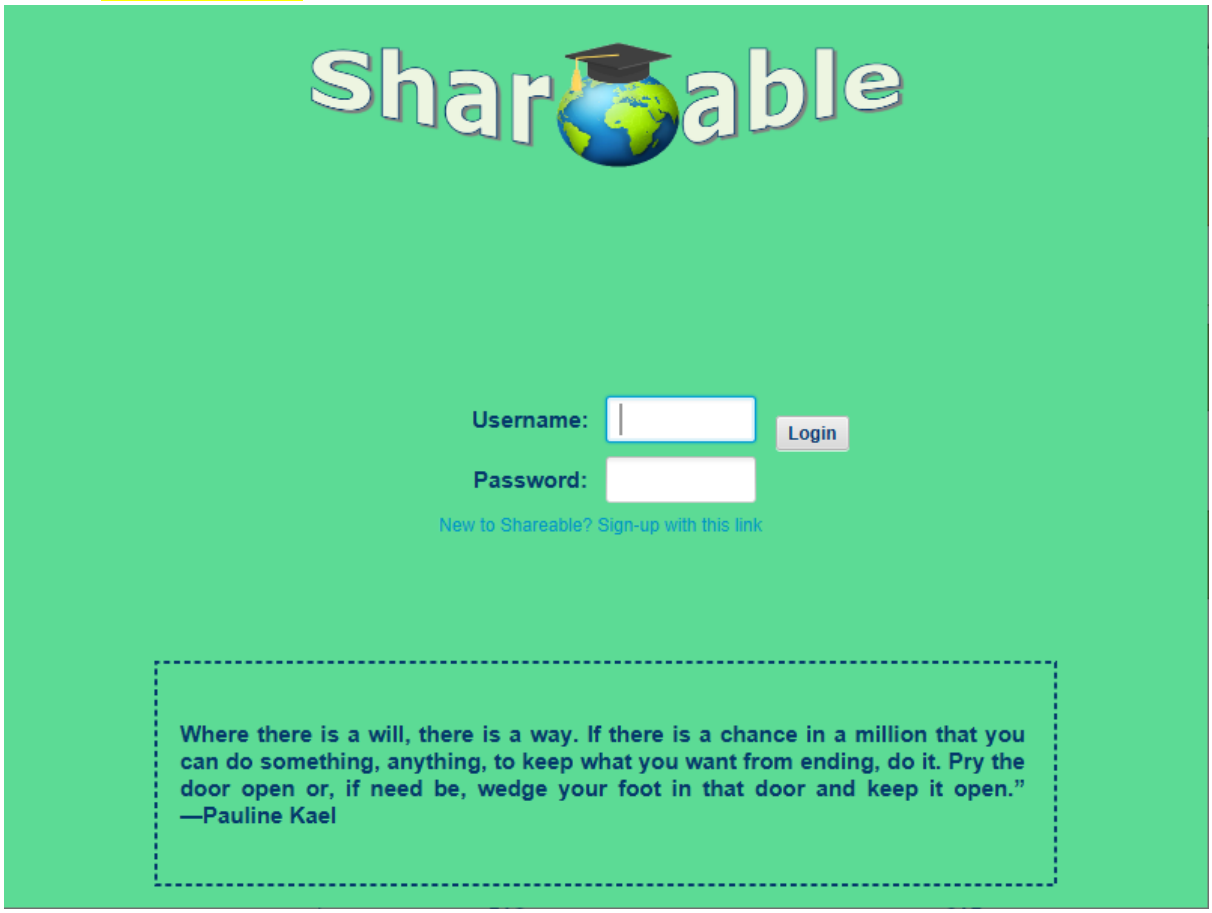
A typical interaction would involve the user selecting a desired topic of interest, followed by a decision of either learning about the topic or teaching the topic, then either choosing an instance created by another user that fits their preferred characteristics or creating a new instance for other users to visualize. If the user decides to choose an already existing instance to learn or teach, they will be then directed to the profile of the user that created the specific instance in order for them to get the contact information and enter into communication through email to make a decision about which online communication platform the class will be in. If the user decided to create their own instance, they will have to wait for another user to show interest in their instance and contact them to organize the online meeting.

5. User Interface Design

The objective of this application is to achieve the most user-friendly scenario possible. Below is a diagram representation of what the connections of different functionalities/pages will be like.



Login Page



Create User Page

Profile Page

Sharable

Name:	admin admin
Nationality:	Brazil
Learning/Teaching:	Teach
Email:	admin@admin.com

Recent Activity
Python
Trigonometry
Astrology

Main Page

Search

Sharable

Welcome, admin

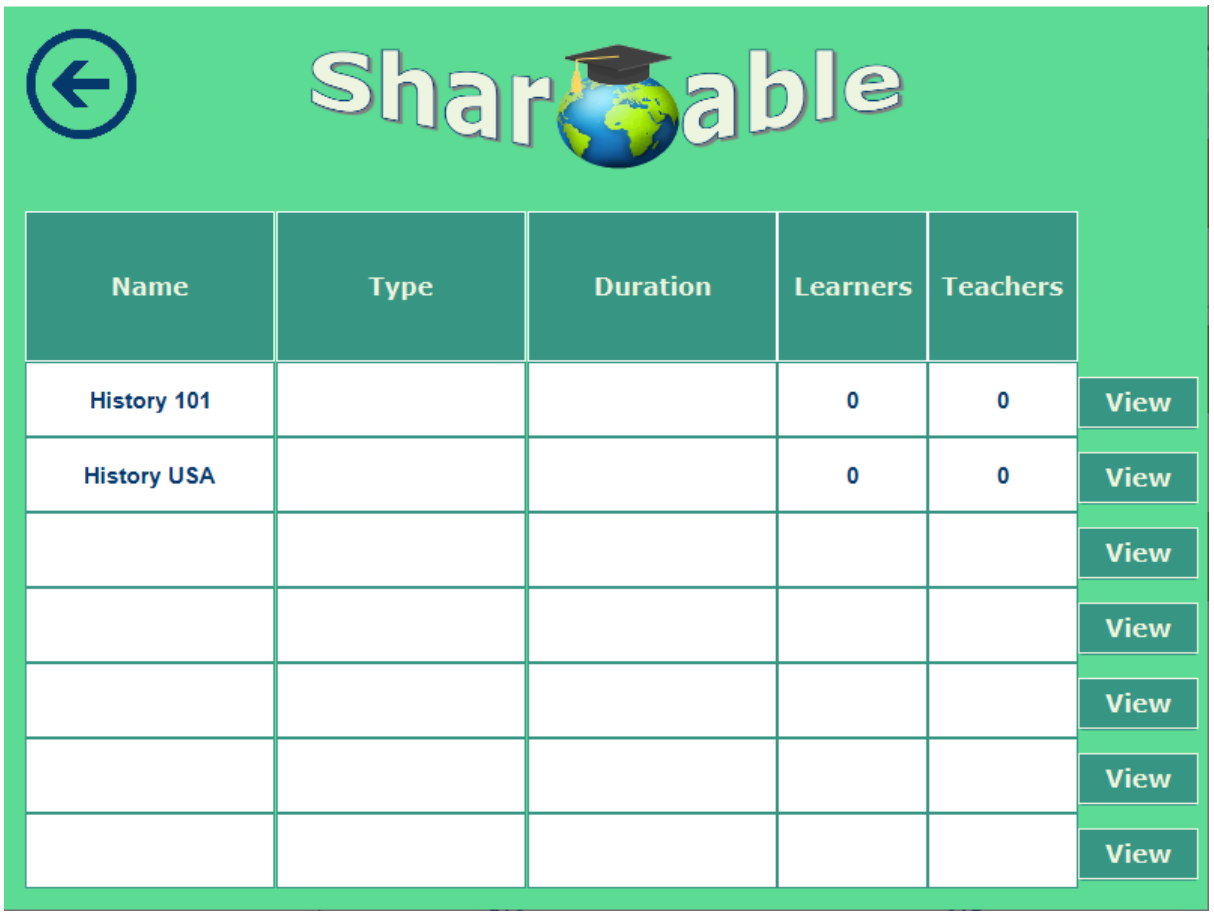
Logout

Most searched	Interesting topics
Today	
Algorithms 101	Yoga 101
JavaFX	Trigonometry
Yoga 101	Programming Python

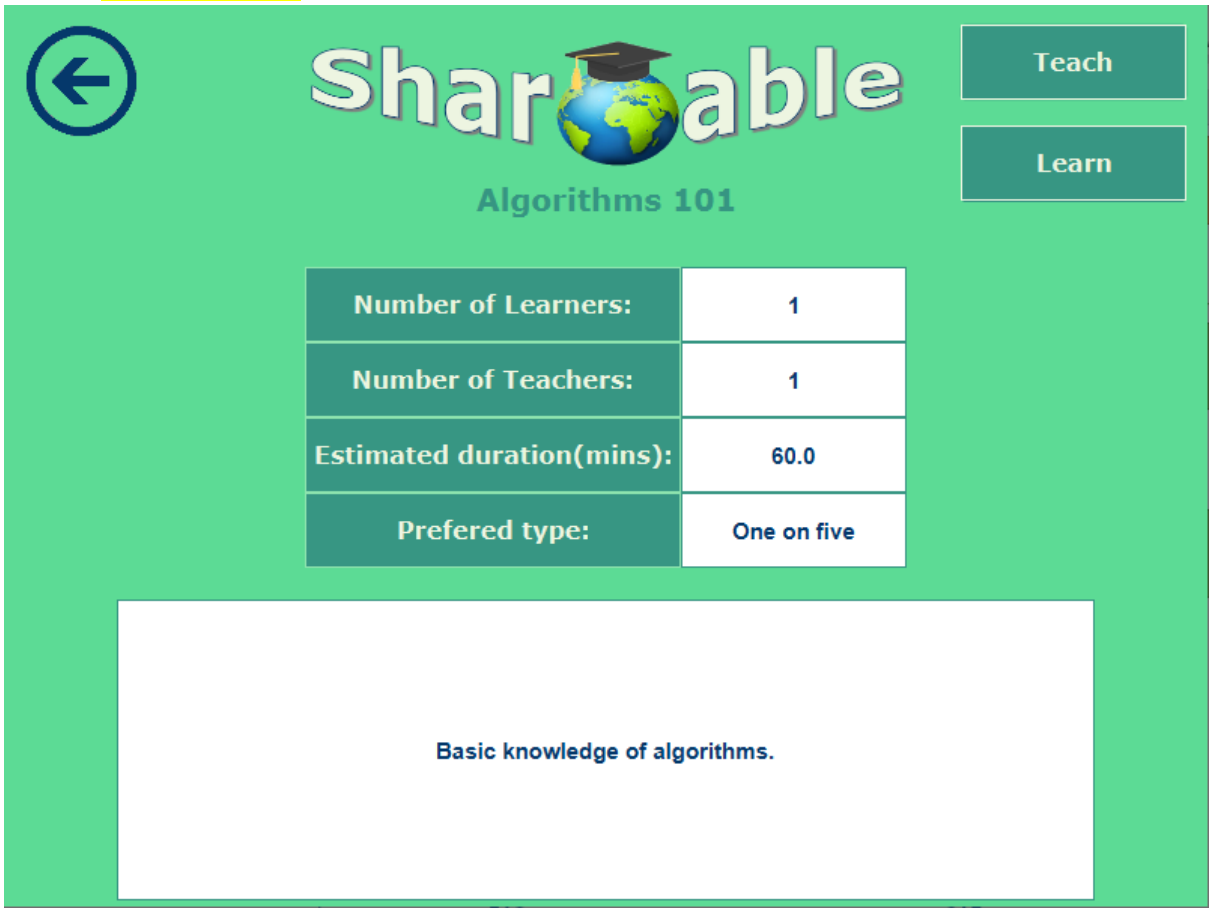
Connections similar to you	What your friends have been doing
Dogan Guven	Mozart recently taught Physics 101
John Smith	Galileu recently learned about Astronomy
James Bond	Trump recently learned about World Domination

Search Page

Results Page



Topic Page



Learn/Teach List Page

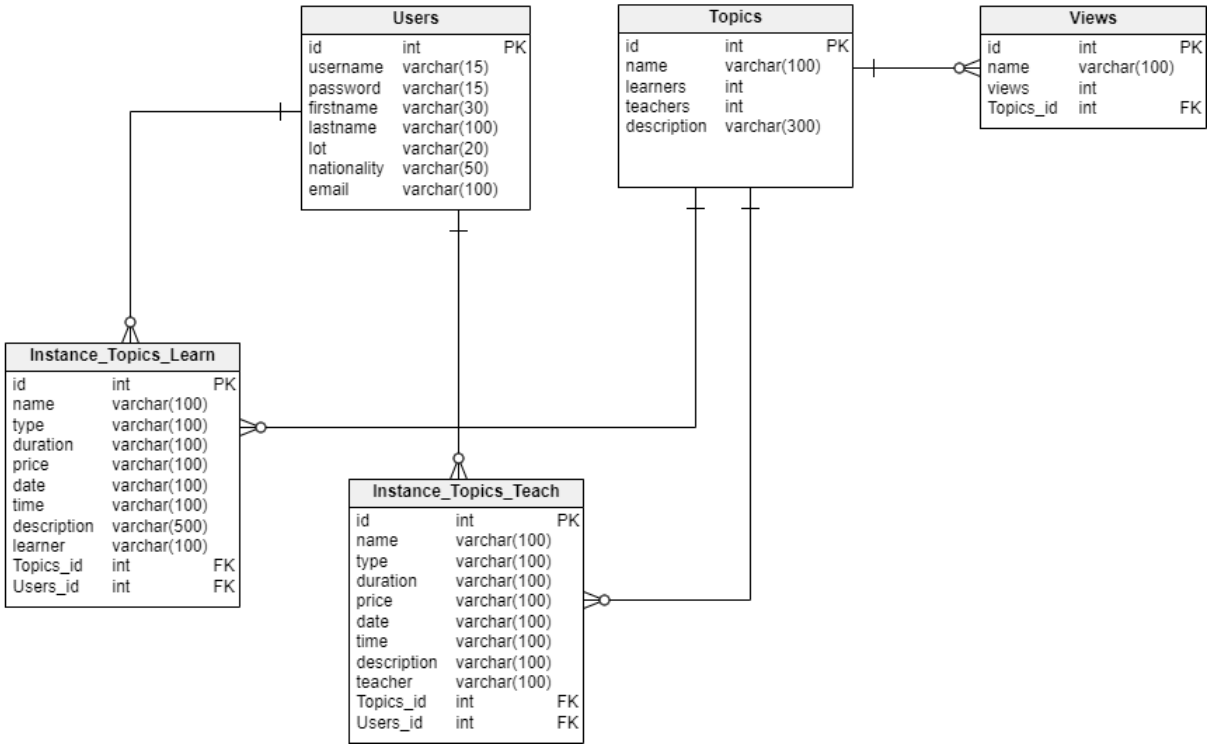
Create Instance Page

Instance View Page

6. Database Design

In this project, a single database was utilized with several tables. Below are the tables used;

- **Users** (Learners and Teachers will have the same profile for users to be able to exercise both functionalities)
- **Topics**
- **View history**
- **Learners instances**
- **Teachers instances**



7. Non-Functional Requirements

- **Usability requirements:**
  - Internet connection

- **Performance requirements:**
  - Fast enough processor to avoid long response times

- **Operational requirements:**
  - High capacity to report any issues regarding reliability / maintainability of the application

- **Development requirements:**
  - Maintain a consistent and robust documentation process

- **Organizational requirements:**
  - Interface that is simple enough for anyone to understand how to navigate.

- **Safety/Security requirements:**
  - Given the financial transaction processes, the platform must provide a security environment to avoid external collection of private data

- **Legislative requirements:**
  - Education laws of different countries must be considered

8. Implementation Plan

For the implementation plan of this project, I believe it would be optimal to utilize a mixture between the waterfall and agile methods because this is a relatively simple project to develop so it can easily planned in advance but it is also more efficient to utilize the agile method to refine the project to reflect customers' requirements.

Activities	Priority	Estimated duration (Days)
Phase 1		
Create base architectual structure	High	3
Develop basic necessary operations	High	3
Create databases	High	2
Create initial CSS scheme	Low	3
Execute development testing	High	2
Apply finishing touches to platform (CSS)	Low	1
Final phase of main defects correction	High	4
Phase 2		
Launch platform for general public	Medium	2
Phase 3		
Prepare team / communication method for software evolution	Medium	∞
Total Estimated days until platform is active		**20**