**MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

**CAPSTONE PROJECT DOCUMENT**

LIVE CODING MENTORSHIP

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| **LIVE CODING MENTORSHIP** | |
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| **Capstone Project code** | LCM |

- Hanoi, January 13, 2020 –

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**Definition and Acronyms**

|  |  |
| --- | --- |
| **Acronym** | **Definition** |
| API | Application Program Interface |
| BA | Business Analysis |
| BR | Business Rule |
| CRUD | Create, Read, Update, Delete |
| DB | Database |
| DBMS | Database Management System |
| EC2 | Elastic Compute Cloud |
| ERD | Entity Relationship Diagram |
| FK | Foreign Key |
| IDE | Integrated Development Environment |
| IT | Information Technology |
| JS | Javascript |
| PK | Primary Key |
| PM | Project Manager |
| QA | Quality Assurance |
| RDS | Relational Database Service |
| S3 | Simple Storage Service |
| SRS | Software Requirement Specification |
| UAT | User Acceptance Test |
| UC | Use Case |
| UI | User Interface |
| UML | Unified Modeling Language |
| UX | User Experience |
| WBS | Work Breakdown Structure |

# I. Project Introduction

## 1. Overview

### 1.1 Project Information

* Project name: **Live Coding Mentorship**
* Project code: **LCM**
* Group name: **SWP490\_G10**
* Software type: **Website**
* Timeline:

### 1.2 Project Team

**1.2.1. Supervisor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Email** | **Mobile** | **Title** |
| Pham Ngoc Ha | hapn10@fe.edu.vn | 0988623000 | Lecturer |

*Table 1.1: Supervisor Information*

**1.2.2. Team Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Email** | **Mobile** | **Role** |
| Bui Cong Anh | anhbcse05256@fpt.edu.vn | 0985532210 | Leader |
| Tran Nguyen Anh | anhtnhe130019@fpt.edu.vn | 0946382755 | Member |
| Hoang Cong Nghia | nghiahche130499@fpt.edu.vn | 0982386548 | Member |
| Le Thanh Dat | datlthe130450@fpt.edu.vn | 0969758599 | Member |
| Nguyen Quang Dung | dungnqhe151250@fpt.edu.vn | 0971757404 | Member |

*Table 1.2: Team Member Information*

## 2. Product Background

Nowadays, Information Technology is a very hot major, which is the goal of many students worldwide.

The Live Coding Mentorship team realized the potential for learning development in the IT field of Viet Nam:

* According to current statistics, in more than 250 universities across the country, about 150 schools are training IT.
* More than 150 institutions provide training for about 50,000 employees for the industry IT each year.
* In FPT University, there are more than 8,000 students, of which >50% study IT majors
* By 2020, there will be nearly 3,000 new students. The number of new students increases by 20-30% each year.

Moreover, more and more Universities and High-Tech Corp (Viettel, CMC, VNU Hanoi,…) proves an explosion of demand for learning. But it’s not easy to approach. A lot of students tried hard to study but still did not get a good result. According to the Ministry of Education and Training, every year about 50,000 IT students graduate, of which only 30% can work immediately, 70% have to be trained.

In 2021, Team Live Coding Mentorship launched a survey on learning online and the need to hire mentors online. There were 81 participants, of which 21% are employed; 79% are students. There are 97,5% of surveyed people studying and working in the IT field.

After surveying, statistics show that:

* 92,6% of respondents have difficulty in self-study because there is no one to explain it clearly.

*Figure 1.1: Statistics about the difficulties in self-study and programing.*

* 93,8% of respondents want to find qualified people to support.



*Figure 1.2: Statistics about the ways to overcome difficulties*

97,5% of respondents want a website to connect them with the right mentor.



*Figure 1.3: Statistics about the user’s needs*

From the above figures, the Live Coding Mentorship team decided to create a website to help connect mentors and mentees. Aim to tap into the education market based on individual needs, boost the learning process, and give mentors an additional income opportunity. This project will bring good mentors to students who need to improve their coding skills. Ask and answer in real-time. Everything you think hard will come easier when you can ask someone who already knows about it.

## 3. Existing Systems

### 3.1. FUNiX



*Figure: FUNiX website (Link: https://fu.funix.edu.vn)*

FUNiX Online University is a university in the FPT Education system, providing Bachelor of Information Technology and certificates of career and soft skills.

FUNiX online university, which inherits the above principles, presents for the first time a new method of education, like every student, from day one:

* Will decide on their learning progress.
* Learn from lectures from the world's best experts.
* Get in contact with leading experts working in the IT industry in Vietnam.

Differences with Live Coding Mentorship:

|  |  |
| --- | --- |
|  |  |
| * FUNiX courses are all long-term courses.      * FUNiX only allows Mentee to select online Mentors. | * Live Coding Mentorship focuses on micro-courses, small knowledge sections, and questions of each Mentee.      * Mentee in Live Coding Mentorship can choose a Mentor through their CV, achievements, and rating. |

### 3.2. Codementor



*Figure: Codementor website (Link:* [*https://www.codementor.io*](https://www.codementor.io/)*)*

Codementor was founded in 2013 by serial entrepreneur Weiting Liu, a Y Combinator alumnus with his previous startup SocialPicks, which was acquired by FinancialContent in 2009.

Codementor's website acts as an open marketplace platform for experienced web developers to offer live help, long-term mentorship, and team training course on the programming languages or web technology they specialize in, with rates set by the mentor themselves. Mentors include O’Reilly’s authors, active Stack Overflow experts, and developers at tech firms such as Google or Amazon.

Differences with Live Coding Mentorship:

|  |  |
| --- | --- |
|  |  |
| * The target market is the entire territory of the world.      * All mentors on websites around the world.      * Using English. | * The target market is the entire territory of Viet Nam.      * All mentors on websites in Viet Nam.      * Using Vietnamese. |

## 4. Business Opportunity

Information technology is an industry with rapid growth in the number of new learners in the last 5 years. Almost all universities open additional IT faculties to attract more students to enroll. This presents a great opportunity to implement business models around this sector.

However, the issues related to education are very complex and require a lot of time to improve and perfect. While the number of new learners continues to increase rapidly, answering questions as well as creating a common environment for people to help each other to gain more understanding and expand knowledge is essential.

To solve that problem, a system or platform connecting new learners, those with questions, and those with a lot of experience need to be born.

## 5. Software Product Vision

With the Applying LCM for providing live help. We aim to optimize the operational structure of managing LCM for each user, the software brings the best result and experience to both mentors and mentees. Specifically, the software assists management functions allow mentors and mentees to open a chat window with integrated video call, screen share. Mentors can periodically schedule when they have free time to teach. Mentees (members) submit questions, choose a topic (course). (text, pictures) - below the group members can chat. Mentors can get answers. Using the software will help mentees quickly improve their coding skills as well as develop the developer community and create more income for Mentors.

## 6. Project Scope & Limitations

### 6.1. Major Features

Live Coding Mentorship is an on-demand marketplace for top Scope engineers, developers, programmers, and tutors. Get your projects built by vetted Scope freelancers or learn from expert mentors with team training & coaching experiences.

|  |  |
| --- | --- |
| **Type of User** | **Description** |
| Admin | People who manage the LCM System |
| Guest | The user that has not yet registered an account |
| Staff | People who manage the transaction |
| Mentor | The registered user that has registered to be a mentor |
| Mentee | The registered user wishes to hire mentors |

### 6.2. Limitations

* **Limited Internet:** The critical requirement of Live Coding Mentorship is the Internet. The only good internet connection can bring the user a good experience and get a better result. But this project can ensure that everyone's network connection is the same.
* **Limited skill confirms**: Live coding mentorship running on the commission of users. Mentor use can show their skills, ability to get more and more students. But this information can be fake.
* **Limited security:** Live coding mentorship will implement the best security solutions and protect users but can't commit 100% a user is safe.

### 6.3 Source Code Management

Source code is managed by Git on github.com

For version control of our source code, we use GitKraken. It tracks the changes team members make to files, so we have a record of what has been done, and we can revert to specific versions should we ever need to.

# III. Software Requirement Specification

## 1. Overall Description

### 1.1. Product Overview

Nowadays, Information Technology is a very hot major, which is the goal of many students worldwide. But it’s not easy to approach. A lot of students tried hard to study but still did not get a good result.



Figure 3.1 Context diagram

So along with the development of the internet, this project will bring good mentors to students who need to improve their coding skills. Ask and answer in real-time. Everything you think hard will come easier when you can ask someone who already knows about it.