

**CAPSTONE PROJECT REPORT**

**Report 1 – Project Introduction**

– Ho Chi Minh, January 2022 –

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# I. Project Introduction

## 1. Overview

### 1.1 Project Information

* Project name: Attendance system for the exams at FPTU HCM
* Project code: SP22SE06
* Group name: VaLua Team
* Software type: Web App, Mobile App

### 1.2 Project Team

#### a. Supervisor

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Email** | **Phone Number** | **Title** |
| Doan Nguyen Thanh Hoa | hoadnt@fe.edu.vn |  | Lecturer |

#### b. Team Members

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Email** | **Mobile** | **Role** |
| Tran Cam Long | Longtcse140661@fpt.edu.vn | 0938935519 | Leader |
| Nguyen Thi Kim Hang | Hangntkse140651@fpt.edu.vn | 0919799125 | Member |
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## 2. Product Background

Under the new normal setting with Covid-19, most students are no longer required to take online exams but rather offline ones. However, gathering students to take an exam in a room poses a potential risk of spreading contagious diseases. They have to contact the supervisor to check their attendance, then use the same paper to sign their name when they finish an exam. To combat this risk, limited contact methods should be applied effectively and thoroughly in all processes of an exam, including organizing exams and taking examinees’ attendances until they finish. This project aims to partially digitalize and automate these processes and make them contactless between users as well as optimize cost and time. The final product is an information system that provides functionalities to organize shifts, exams, examinees, reports based on provided information about subjects, semesters, rooms, accounts as well as managing attendances with the help of AI to automate processes that require contact between people.

## 3. Existing Systems

Currently, there is no attendance checking system and the attendance taking process is done manually in FPTU HCM.

For exam organizing, the current system can automatically assign examinees from excel files by each subject into shifts with existing rooms.

* Advantages:
  + Centralized user interface allows organizing shifts quickly.
  + Fast performance can assign thousands of examinees for multiple campuses within seconds.
* Disadvantages:
  + Does not support staff assignments.
  + Does not support multiple subjects in the same room.
  + Room must have a fixed seat count of 20.
  + Exporting exam schedules is manually done.

## 4. Business Opportunity

With the reopening for students to return to FPT University, many students and staff have expressed their concerns about the risk of spreading Covid-19 that will result in closing the university again. Their worries are reasonable since vaccination is not enough to make sure immunity is guaranteed. They have suggested that some information system should be created to help students and staff to limit contacts when conducting an exam.

Additionally, some staff and managers have shared that cutting and pasting exam schedules between excel files and manually joining exam rooms into a room are somewhat laborious. Additionally, in FPTU, some rooms are larger than others and could be filled with more seats to save resources. With limited manpower, they need to optimize efforts and time put in this process.

To solve those 2 problems effectively, an information system capable of organizing exams as well as helping staff and examinees manage their attendances in a contactless way is needed.

## 5. Software Product Vision

Attendance system for the exams at FPTU HCM (VaLua) is intended to support teachers or staff who supervise exams, shift manager, examinees and an administrative manager. This system is comprised of a web-based management application for the manager to handle rooms, subjects, tools allowed in subjects, semesters and accounts. Also, users with shift managers role can control shifts, exam rooms, examinees and reports in that web as well as export exam shifts and attendances reports. VaLua provides staff with a mobile app to register their shifts and view their assignments. Examinees also have a mobile app to check attendance and view their exam schedules. To limit contact during the exam process, staff only have to authorize and start checking attendance on another mobile app called “VaLua Camera app”, clean the device and let examinees check their attendance themselves. With the help of artificial intelligence (AI), examinees will be required to scan a QR code with a phone on this app’s screen then the app will take an image shortly to verify if the AI is confident that the face captured, and that examinee’s face data is the same to check attendance.

## 6. Project Scope & Limitations

### 6.1 Major Features

#### Manager

**FE-01:** Create, view, update, disable, reset password for accounts

**FE-02:** Create, view, update, disable subjects

**FE-03:** Create, view, update, disable semesters

**FE-04:** Add / Remove subjects to / from semesters

**FE-05:** Create, view, update, disable tools

**FE-06:** Add / Remove tools to / from subjects

**FE-07:** Create, view, update, disable rooms

#### Shift Manager

**FE-08:** Create, view, update, delete shifts

**FE-09:** Create, view, update, delete exam rooms

**FE-10:** Create, delete, export attendances

**FE-11:** View report, resolve report

**FE-12:** Lock shift

**FE-13:** Start shift’s registration

**FE-14:** Import / Remove examinees to / from a subject in a semester

**FE-15:** Assign staffs

**FE-16:** Export shifts

#### Staff

**FE-17:** View, start and finish assigned exam rooms

**FE-18:** Register shifts

**FE-19:** Create, view report of assigned exam room

**FE-20:** View, update attendance of assigned exam room

#### Examinee

**FE-21:** View own exam schedule

**FE-22:** Check attendance

#### Authenticated User

**FE-23:** View, update profile, change password

**FE-24**: View notifications

**FE-25:** Logout

#### Unauthenticated User

**FE-26:** Login

#### System Handler

**FE-27:** Push notification

### 6.2 Limitations & Exclusions

#### Limitations

* **LI-01:** The VaLua system only supports organizing exams and taking attendance processes and requires human confirmation before a process is committed.
* **LI-02:** The VaLua system does not involve how exams are done, submitted or evaluated.
* **LI-03:** To maintain flexibility, in some use cases, VaLua only warns users when they input abnormal values instead of restricting them, which results in these use cases being prone to human errors.
* **LI-04:** Because of performance limitation, VaLua requires examinees to scan QR in addition to taking a picture instead of face recognition.
* **LI-05**: The VaLua System only supports the HCM Campus of FPT University.
* **LI-06**: There is no type of user who authorizes the shift manager to locking shifts and making important changes.