# Report No. 1 Introduction

## Project Information

* + - * Project name: **Practical Examination Evaluation Automation Using DevOps**
    - Project Code: **PE2A**
    - Product Type: **Website & Desktop Application**
    - Start Date: **Jan 13th, 2020**
    - End Date:
  1. **Introduction**

In this document, we introduce a solution for grading mark for the practical examinations automatically. We build a system supports lecturers define test scripts for marking multiple practical submissions. Students submit practical submission and the system will run, test and return the tested results.

* 1. **Current situation**

Currently, in most universities, the number of systems that support automatically evaluate practical exams is still limited, most of them use the traditional method that the students submit projects and the lecturer will evaluate by interviewing the student and evaluating their project. Some modern systems such as Coursera, Code Online only support run simple test scripts and run after filled in the available information, but do not support automated execution and automatic deploy Web Application to server.

## Problem Definition

Below are disadvantages of current situation:

* **Manually collecting and evaluating all submissions is a time-consuming work:** In the current process, the student has to download their work from the FPT University Learning Management System website, extract and prepare required environments for evaluation. After that, the lecturer evaluates every function in a student’s work. This process leads to increase evaluation time of the lecturer if the number of submissions is increase.
* **Omission when manually evaluate all functions:** Manually evaluate every function of all submissions not only a time-consuming work but also easy to miss out on some functions of student submissions.

## Proposed Solution

We build a system that allows defining script tests automated tests based on the DevOps platform. The system allows students to submit their project to the lecturer application and from that, the system will run, test and return the tested results automatically. The system also deploys the submitted projects to Azure DevOps. Azure DevOps will automatically run, test and return the tested results from the Azure server for back up.

### Feature functions

* **Manager:**
  + Managers can manage and create code for test scripts.
* **Student:**
  + Students can enroll in practical exams.
  + Students can submit their practical exam by logging in to the desktop application.
* **Lecturer leader:**
  + Lecturer leaders can define test cases for the practical exams.
  + Lecturer leaders can view, manage their test cases.
* **Lecturer:**
  + Lecturers can create a practical exam.
  + Lecturers can import the testing project to the desktop application.
  + Lecturers can retrieve all submissions and evaluate them automatically.

### Advantages and disadvantages

The advantages and disadvantages of the proposed solution:

* Advantages:
  + Provide a tool for the lecturer to automate marking project points.
  + Reduce human labor.
  + Detect project’s source sharing among students.
* Disadvantages:
  + Only support C Programming, Java Programming, C# Programming, and Java Web Programming.
  + Lecturer leaders must have knowledge about testing.

## Functional Requirements

Function requirements of the system are listed below:

### Authentication and Authorization:

* Authenticate and authorize users to use management functions.

### System Handler:

* Automatically evaluate the practical examination.

### Manager:

* Create and manage test case templates.
* Create and manage actions.

### Lecturer leader:

* Create and manage test cases.
* Download test case files.

### Lecturer:

* Download the pre-set project to add to the Lecturer application.

### Student:

* Submit practical exam files.

## Role and Responsibility

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| --- | --- | --- | --- | --- |
| **No** | **Full Name** | **Role** | **Position** | **Contact** |
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