Barcode Based Attendance

PLATFORM

Visual Studio Professional 2013 for x86 based systems.

LANGUAGE

Visual C++

PROBLEM

Barcode (on ID card) based attendance system.

OBJECTIVE

The objective is to create a barcode based attendance system. By this process we reduce manual effort in taking attendance and ensure to keep an electronic record of the history as per the requirements of the user(Professor, Students or Admin) .

MODEL FOLLOWING

The Rapid Application Development Model is used as a basic outline for the development of this project.

FUNCTIONALITY

BASIC VERSION 1.0

- Scan the barcode from the image to register the attendance (with Date and Time Information)
- Option for taking manual input in case the barcode reader does not work.
- Display course wise attendance list to the professor.
- Display the student its attendance history like, which classes he bunked, % of classes attended, no of classes required to attend to ensure that he grabs 75% attendance, etc.
- Professors can search a particular student by its name or some other field.
- Identify and display the students with short attendance.
- Generate appropriate graphs and excel files for the semester long attendance.

VERSION 2.0 (Further Implementation)

- Inform students with short attendance using webmail.
- Predict the no. of students attending the next class.
- According to the pattern observed predict the classes in which there is a high probability that a particular student attends.
- Admin can add/delete students and courses.
- Data will be periodically backed up online to ensure there is no data lost.

MODULES

INPUT PROCESSING

Scan barcode and process it in order to give the unique ID of each student along with Date and time.

The date and time is required so that the particular instance of barcode being scanned gets mapped correctly to the respective slot.

Example :-

Suppose the barcode is scanned on Wednesday at 10:00 a.m. . We will ensure that the attendance is entered in software engineering class for CSE 2nd years

DATABASE MANAGEMENT

We will use proper available database system (either MS-ACCESS or SQL) to keep records of each student.

The roll no obtained from input processing will be used as a key to access the data of a particular student.

In database we will maintain a student section where along with details of student there will be 42 columns for each course taken in that particular semester. The input will be 1 if the barcode is scanned on that day else 0.

By this we will generate the data which will be used for generating graphs and course-wise excel sheets for professors.

DESIGN

Designing of form window which includes background, positioning and size of elements (Buttons, text box, picture box), highlighting the element where the mouse is pointed at.

Login Portal for admin, professor and student. Generating appropriate graphs and excel files as per the requirements of the user.

IMPLEMENTATION

The first part is taking input from the user using a scanner. Since a scanner takes input and throws it into the keyboard buffer, we can easily do this, as the input is equivalent to taking it from the keyboard. We will also return the date and the time, to the database.

The database will mark initially the attendance 0 for each class for each student, on getting the particular date and time and roll number we will assign 1 to that box using sql query.

Thus, the database is built using everyday attendance.

The database stores the information about the schedule of the classes, with date and time.

The choice to select Login is provided and based on the choice the Login

Menus are displayed.

The Login is implemented using simple C++ functions by matching the credentials of login from a file. After the logins various functionalities are implemented using C++ functions and the Database.

TARGET USER GROUP

I. It will be a great reference for students to know there present attendance in respective classes.
II. It will act as the reference material for professors to know which students are regular in class and who are not coming at all.
III. It will easily show the list of students who are lacking in attendance so that admin may contact them and warn them.

TEAM MEMBERS (In Alphabetical Order):

- Abhishek Kumar 130101002
- Ajinkya (Team Leader) 130101004
- Arnav Vohra 130101009
- Jitendra Choudhary 130101017
- Pavaneswar Nidamanuri 130101053
- Revanth Chetluru 130101016
- Nikit Begwani 130101055
- Piyush Kedia 130101056
- Prarabdha Soni 130101058
- Varun Raj 130101077

WORK DISTRIBUTION

I. **TEAM LEADER –** Ajinkya

II. **MODULE 1** - INPUT PROCESSING

1. Varun Raj- **SUB LEADER**
2. Revanth Chetluru
3. Jitendra Choudhary

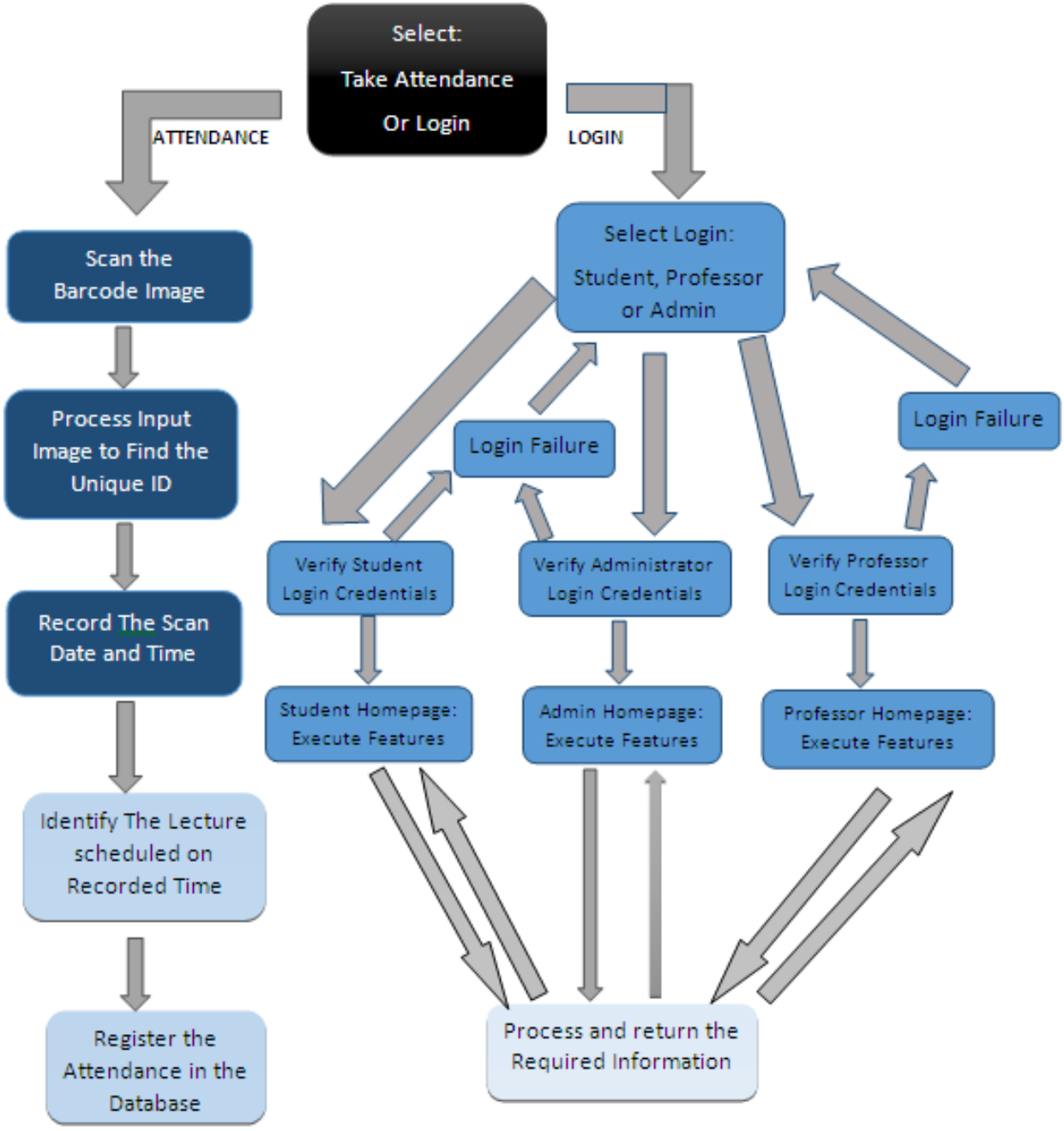
III. **MODULE 2** - DATABASE MANAGEMENT

1. Nikit Begwani-**SUB LEADER**
2. Prarabdha Soni
3. Ajinkya

IV. **MODULE 3 -** FRONT END

1. Piyush Kedia-**SUB LEADER**
2. Abhishek Kumar
3. Arnav Vohra
4. Pavaneswar Nidamanuri

FLOW OF LOGIC


Select:
Take Attendance
Or Login
ATTENDANCE
LOGIN
Scan the Barcode Image
Process Input Image to Find the Unique ID
Record The Scan Date and Time
Identify The Lecture scheduled on Recorded Time
Register the Attendance in the Database
Select Login: Student, Professor or Admin
Login Failure
Login Failure
Verify Student Login Credentials
Verify Administrator Login Credentials
Verify Professor Login Credentials
Student Homepage: Execute Features
Admin Homepage: Execute Features
Professor Homepage: Execute Features
Process and return the Required Information