

System Requirements

- System shall:
 - Allow users to upload attendance data file in XML or CSV format
 - Read attendance data file of XML or CSV format
 - Run attendance check in user set date
 - Run attendance check in configured number of times
 - Send reminder emails for students' attendance lower than configured threshold percentage
 - Check if students reply to the email
 - Collect all students' replies in a single inbox
 - Extract students' absence reasons from students' replies
 - Store all extracted data in university's database
 - Implement a log-in function
 - Contain two different user accounts:
 - **Administrator:** have a privilege to configure everything in the system. Configure what other users' account can read, write and modify
 - **Regular user:** only have permission to access what administrator allow them to do
 - Show different login page for administrators and regular users
 - Provide users two permission levels:
 - Level 1: have only access to students of specific degree course
 - Level 2: have only access to students of specific academic year

Statistics & feedback

- Users shall be able to check students' attendance by:
 - Searching a student's name
 - Chosen date
 - Selecting academic year
 - Selecting modules
- Users shall be able export the students' report as:
 - Individual student
 - The whole term attendance statistics
 - The whole academic years attendance statistics
 - A particular module of attendance statistics
- Users can add notes to each student

Admin Configuration

- Administrator shall be able to configure:
 - The attendance check timeframe
 - The number of attendance checks in a term/year
 - The time interval between two emails for non-responding students
 - The percentage thresholds for every resulting check
 - Reminding email template depending on the level of attendance:
 - Level 1: attendance lower than 80%
 - Level 2: attendance lower than 60%
 - Level 3: attendance lower than 40%
 - Custom: Add more for users intended
- Administrator should be able to categorise students' response emails depending on the following cases:
 - Case 1: Student has no academic or personal issues, and will improve their attendance in the future
 - Case 2: Student has academic or personal issues, and needs an email response
 - Case 3: Student did not respond to email
- Administrator should be able to configure other user accounts' permission level

Data Visualisation

- System shall display different types of charts of users' choice:
 - A pie chart to indicate the proportion of absent students among all students
 - A bar chart to indicate which time or which module students attend most or least
 - A table to indicate multiple students' attendance status
 - A line graph to show the trend of students' attendance in recent years
- System should generate interactive charts:
 - Click on the chart and get tooltip information
 - Export/print to pdf, excel or other file formats

Message Board

- Student shall be able to:
 - Login the system
 - See their own attendance
 - Reply through website, if received an email reminder
 - Ask questions in the message board
- DSE users shall be able to reply to the questions in the message board

Data Analysis

- System can use machine learning to create a model, predicting the attendance for next term