**Software Requirements Specification (SRS) Document**

# Project Name: Teaching Assistance tool for English Language Learning

Team Number: 24

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# Brief problem statement

The developed app aims to help teachers in a classroom environment by providing them digital tools to conduct English classes. The app shall act as a learning assistance platform and interface for an existing speech evaluation API (voisTUTOR) that, evaluates the performance of the student speech under metrics such as pronunciation, intonation, pauses, etc. The app can also be used by students for self-practice and evaluation to improve their speech and monitor their progress.

# System requirements

The Web app will be developed using MERN stack.

* It is a web app, which can be accessed through any browser (Eg. Chromium, Firefox)
* A smart device with internet connection, microphone.

# Users profile

The developed application is to be deployed in a school setting with the following three class of users:

1. Admin: Should have familiarity with usage of website and Microsoft Office Suite (Excel). Will perform tasks such as teacher account maintenance and course and student roster updates. He will also help in account recovery in case any teacher or student loses his/her password.
2. Teacher: Should have a basic understanding of how to operate smartphones/computers and work with websites and Microsoft Office Suite (Excel).
3. Student: Should have basic understanding of how to operate smartphones/ computers and work with websites

# Feature requirements (described using use cases)

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| **No.** | **User Case Name** | **Description** | **Release** |
|  | Login – Teacher | Allow the teacher to login into the app using email-id and password provided by admin |  |
|  | Dashboard – Teacher | Allow the teacher to view her personal details like profile information, qualifications, experience, classes for the day and option to edit her profile details |  |
|  | View Student Reports – Teacher | Allow the teacher to view grade sheet of students grouped by class and performances in past chapters also |  |
|  | Detailed report of a student – Teacher | Allow the teacher to view detailed report and statistics of a particular student including all sentences spoken by him in the past, his performance statistics etc. |  |
|  | Teaching mode (Plan the class) – Teacher | Allow the teacher to plan the class in advance by selecting sentences from a particular chapter |  |
|  | Teaching mode – (Conduct the class) Teacher | Allow the teacher to use the planned lesson and conduct the class by recording students’ speech and getting results from the app (which is done by interacting with the voisTutor API internally by the app) |  |
|  | Assessment mode – (Plan the test) Teacher | Allow the teacher to plan the test by selecting sentences and assigning it to students from a particular chapter (according to the week) |  |
|  | Assessment mode – (Take Evaluation) Teacher | Allow the teacher to take evaluation of students using the planned roster. The teacher will be able to record students’ speech and on evaluation by the app, the results will be displayed, and students’ progress into the chapter (grade) will be updated |  |
|  | Class Overview – Teacher | Allow the teacher to track the performance of class over a certain period, view chapter wise performance and other related statistics |  |
|  | Login – Student | Allow the student to login into the app using email-id and password provided by admin |  |
|  | Dashboard – Student | Allow the student to view his profile details, his grade sheet, his self-tests taken etc. |  |
|  | Practice mode – (Select sentences) Student | Allow the student to select sentences that he wants to practice from any chapter and take practice lessons |  |
|  | Practice mode – (Evaluation)  Student | Allow the student to evaluate himself on the selected sentences. Allow him to listen to expert audio before recording his voice and getting the results |  |
|  | Self-Tests mode – Student | Allow the student to take self-test in which sentences would be provided by the app based on the current chapter of the student. |  |
|  | Login – Admin | Allow the admin to login into the app using credentials pre-provided by the tech team |  |
|  | Dashboard – Admin | Allow the admin to view his profile, create account for any new user in the app and provide him the credentials of account, view credentials of already added users |  |

**Use case diagram:**

**TEACHER**

Diagram, schematic

Description automatically generated

**STUDENT**

Diagram

Description automatically generated

**Use case description**

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| **Use Case Number:** | UC-01 |
| **Use Case Name:** | Login - Teacher |
| **Overview:** | Allow the teacher to login into the app using email-id and password provided by admin |
| **Actors:** | Teacher, JWT Authentication |
| **Pre condition:** | The teacher’s account must be created by the admin of organization and teacher should know the credentials to login into her account. |
| **Flow:** | Main (success) Flow:   1. The credentials entered by teacher would be verified with the stored credentials in the database 2. If it is correct, then teacher would be redirected to Dashboard – Teacher. |
|  | Alternate Flows: If credentials are invalid, generate an alert message saying the same. |
| **Post Condition:** | Upon successful login, the teacher would be redirected to Dashboard – Teacher(UC-02). |

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| **Use Case Number:** | UC-02 |
| **Use Case Name:** | Dashboard - Teacher |
| **Overview:** | Allow the teacher to view her personal details like profile information, qualifications, experience, classes for the day and option to edit her profile details |
| **Actors:** | Teacher |
| **Pre condition:** | The teacher must have logged in. |
| **Flow:** | Main (success) Flow:   1. Dashboard shows profile details, qualification, experience, classes for the day (of the teacher) 2. It also has option to edit profile details |
|  | Alternate Flows: If details entered in edit profile form is invalid then profile is not updated and error message is displayed. |
| **Post Condition:** | If profile information is successfully updated, teacher is able to see updated profile. |

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| **Use Case Number:** | UC-03 |
| **Use Case Name:** | View Student Reports – Teacher |
| **Overview:** | Allow the teacher to view grade sheet of students grouped by class along with performances in past chapters |
| **Actors:** | Teacher |
| **Pre condition:** | The teacher must have logged in. |
| **Flow:** | Main (success) Flow:   1. The grade sheet shows progress of all students of a class along with performances in all chapters taught till date. 2. The teacher can select any class which she teaches and view grade sheet of students belonging to that class. 3. The teacher can click any student’s name to view his/her detailed report. |
|  | Alternate Flows: If the teacher is new and has not been assigned any class, then the page displays message saying the same. |
| **Post Condition:** | 1. If the teacher teaches any class, then she can view grade sheet of that class. 2. On clicking a student’s name, the teacher is redirected to Detailed report of a student – Teacher (UC-04). |

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| **Use Case Number:** | UC-04 |
| **Use Case Name:** | Detailed report of a student – Teacher |
| **Overview:** | Allow the teacher to view detailed report and statistics of a particular student including all sentences spoken by him in the past, his performance statistics etc. |
| **Actors:** | Teacher |
| **Pre condition:** | The teacher must have logged in.  The teacher should click the name of the student of which she wants detailed report. |
| **Flow:** | Main (success) Flow:   1. The detailed report shows the student’s overall performance, his chapter wise performance, and related statistics. 2. It also shows all the sentences on which the student has been evaluated in the class and results in each of those sentences. |
|  | Alternate Flows: None |
| **Post Condition:** | After analyzing the detailed report, she can go back to the grade sheet by pressing back button or to the dashboard by pressing dashboard button. |

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| **Use Case Number:** | UC-05 |
| **Use Case Name:** | Teaching Mode (Plan the class) - Teacher |
| **Overview:** | Allow the teacher to plan the class in advance by selecting sentences from a particular chapter |
| **Actors:** | Teacher |
| **Pre condition:** | 1. The teacher must have logged in. 2. The teacher has selected the class for which she wants to plan. |
| **Flow:** | Main (success) Flow:   1. The teacher selects a chapter, and the app then displays all the sentences from that chapter. 2. The teacher adds sentences by clicking the add button beside the sentences. She can remove any added sentence by clicking the remove button. 3. She can view the list of added sentences. |
|  | Alternate Flows: None |
| **Post Condition:** | 1. After selecting all the sentences, she clicks on the save lesson button to save the planned lesson. 2. She can immediately start conducting the class by clicking start evaluation. |

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| **Use Case Number:** | UC-06 |
| **Use Case Name:** | Teaching Mode (Conduct the class) - Teacher |
| **Overview:** | Allow the teacher to use the planned lesson and conduct the class by recording students’ speech and getting results from the app (which is done by interacting with the voisTutor API internally by the app) |
| **Actors:** | Teacher |
| **Pre condition:** | 1. The teacher must have logged in. 2. The teacher must have planned the lesson beforehand. |
| **Flow:** | Main (success) Flow:   1. The selected sentences will be displayed. 2. Teacher will pick a student to read a specific sentence. 3. She records the student’s voice and clicks on evaluate button. 4. The result will be displayed and the class performance as an average will be updated without affecting the students’ record. |
|  | Alternate Flows: If the teacher didn’t plan the sentences earlier, she will be prompted to do so and redirected to UC-05. |
| **Post Condition:** | 1. The class performance will be updated after every evaluation. 2. The results of the activity will be saved for reference. 3. Teacher will be redirected to the class Dashboard after clicking on finish evaluation. |

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| **Use Case Number:** | UC-07 |
| **Use Case Name:** | Assessment mode – (Plan the test) Teacher |
| **Overview:** | Allow the teacher to plan the test by selecting sentences and assigning it to students from a particular chapter (according to the week) |
| **Actors:** | Teacher |
| **Pre condition:** | 1. Teacher should be logged in using her credentials 2. She should select the class she wants to examine. |
| **Flow:** | Main (success) Flow:   1. The teacher selects a chapter, and the app then displays all the sentences from that chapter. 2. The teacher assigns a sentence to a student by clicking the assign button. 3. She can add a new student if not already present in the list of students. |
|  | Alternate Flows: None |
| **Post Condition:** | 1. After selecting all the sentences, she clicks on the save assessment button to save the planned assessment. 2. She can immediately start the assessment by clicking start assessment. |

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| **Use Case Number:** | UC-08 |
| **Use Case Name:** | Assessment mode - (Take Evaluation) Teacher |
| **Overview:** | Allow the teacher to take evaluation of students using the planned roster. The teacher will be able to record students’ speech and on evaluation by the app, the results will be displayed, and students’ progress into the chapter (grade) will be updated |
| **Actors:** | Teacher, voisTUTOR API |
| **Pre condition:** | The teacher must have logged in. |
| **Flow:** | Main (success) Flow:   1. The page shows all the sentences planned by the teacher and the corresponding students to which they are assigned. 2. On clicking the record button, the sentence will appear in a pop-up and the voice of student would be recorded. The teacher can record again if she feels to do so. 3. On clicking evaluate button, the recorded audio gets evaluated and results are displayed in a pop-up. |
|  | Alternate Flows: None |
| **Post Condition:** | After evaluating a student, the teacher continues to do the same for every student in the roster and after completing the evaluations, the teacher clicks on finish evaluation which redirects to dashboard. |

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| **Use Case Number:** | UC-09 |
| **Use Case Name:** | Class Overview – Teacher |
| **Overview:** | Allow the teacher to track the performance of class over a certain period, view chapter wise performance and other related statistics |
| **Actors:** | Teacher |
| **Pre condition:** | The teacher must have logged in. |
| **Flow:** | Main (success) Flow:   1. Overview page has all the analytics of the entire class like average performance, chapter wise performance, strongest metric etc. 2. Teacher can select any class (which she teaches) and the class statistics will be displayed |
|  | Alternate Flows: None |
| **Post Condition:** | The teacher can go back to the dashboard after viewing class performance. |

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| **Use Case Number:** | UC-10 |
| **Use Case Name:** | Login – Student |
| **Overview:** | Allow the student to login into the app using email-id and password provided by admin |
| **Actors:** | Student, JWT Authentication |
| **Pre condition:** | The student’s account must be created by the admin of organization and he should know the credentials to login into his account. |
| **Flow:** | Main (success) Flow:   1. The credentials entered by student would be verified with the stored credentials in the database 2. If it is correct, then student would be redirected to Dashboard – Student. |
|  | Alternate Flows: If credentials are invalid, generate an alert message saying the same. |
| **Post Condition:** | The student will be redirected to Dashboard Student on successful login. |

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| **Use Case Number:** | UC-11 |
| **Use Case Name:** | Dashboard – Student |
| **Overview:** | Allow the student to view his profile details, his grade sheet, his self-tests taken etc. |
| **Actors:** | Student |
| **Pre condition:** | The student must have logged in. |
| **Flow:** | Main (success) Flow:   1. Dashboard shows profile details, current chapter, sentences spoken, sentences practiced, self tests taken. There will also be grade sheets 2. It also has option to edit profile details |
|  | Alternate Flows: If details entered in edit profile form is invalid then profile is not updated and error message is displayed. |
| **Post Condition:** | If profile information is successfully updated, student can see updated profile. |

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| **Use Case Number:** | UC-12 |
| **Use Case Name:** | Practice mode – (Select sentences) Student |
| **Overview:** | Allow the student to select sentences that he wants to practice from any chapter and take practice lessons |
| **Actors:** | Student |
| **Pre condition:** | The student must have logged in. |
| **Flow:** | Main (success) Flow:   1. The student selects sentences from any chapter he wants to practice. 2. He clicks on add or remove button to add a sentence or remove a sentence (if already added). |
|  | Alternate Flows: None |
| **Post Condition:** | The student clicks on start evaluation button to start practicing the selected sentences. |

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| **Use Case Number:** | UC-13 |
| **Use Case Name:** | Practice mode – (Evaluation) Student |
| **Overview:** | Allow the student to evaluate himself on the selected sentences. Allow him to listen to expert audio before recording his voice and getting the results |
| **Actors:** | Student |
| **Pre condition:** | 1. The student must have logged in. 2. The student must have selected the sentences he wants to practice. |
| **Flow:** | Main (success) Flow:   1. The app prompts all the select sentences. 2. The student has an option to listen to the expert audio of the selected sentences 3. He can then click on the record button to record his voice for the sentence and then click on evaluate to see the results |
|  | Alternate Flows: None |
| **Post Condition:** | The results for the performance of the student will be displayed and his statistics in the page will be updated. On completing, the student clicks finish evaluation button which redirects to Dashboard – Student. |

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| **Use Case Number:** | UC-14 |
| **Use Case Name:** | Self-Tests mode – Student |
| **Overview:** | Allow the student to take self-test in which sentences would be provided by the app based on the current chapter of the student. |
| **Actors:** | Student |
| **Pre condition:** | The student must have logged in. |
| **Flow:** | Main (success) Flow:   1. When the student clicks on the “Take test” button, the app randomly selects sentences from his current chapter and tests him 2. The student should record his voice for each of the sentences and click on the evaluate button. The results are shown in a pop-up. |
|  | Alternate Flows: None |
| **Post Condition:** | The results of the student’s performance in the test will be displayed and his statistics will be updated accordingly. He will be redirected to dashboard on completing the test. |

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| **Use Case Number:** | UC-15 |
| **Use Case Name:** | Login – Admin |
| **Overview:** | Allow the admin to login into the app using credentials pre-provided by the tech team |
| **Actors:** | Admin, JWT Authentication |
| **Pre condition:** | The admin should have the required credentials. |
| **Flow:** | Main (success flow):   1. The credentials entered by admin would be verified with the stored credentials in the database 2. If it is correct, then admin would be redirected to Dashboard – Admin. |
|  | Alternate Flows: If credentials are invalid, generate an alert message saying the same. |
| **Post Condition:** | The admin will be redirected to Dashboard Admin on successful login. |

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| **Use Case Number:** | UC-16 |
| **Use Case Name:** | Dashboard – Admin |
| **Overview:** | Allow the admin to view his details, add any user, view credentials of any user |
| **Actors:** | Admin |
| **Pre condition:** | The admin should have logged in |
| **Flow:** | Main (success flow):   1. The admin creates new account (for teachers and students) using the add new user button. 2. The admin can access the credentials of users and help them with account recovery in case any user forgets or misplaces their credentials. |
|  | Alternate Flows: None |
| **Post Condition:** | The admin can give credentials to users after making new accounts. |