### State Machine for a School Application System

A state machine is an abstract model that defines a set of states and the transitions between those states. In the context of a school application system for students transitioning from high school to university, the state machine can help manage the various stages of the application process.

#### \*\*States:\*\*

1. \*\*Start (Initial State):\*\*

- \*\*Description:\*\* The initial state where the application process begins. The student has not yet started the application.

- \*\*Possible Transitions:\*\*

- To \*\*Filling Application\*\* when the student begins the application process.

2. \*\*Filling Application:\*\*

- \*\*Description:\*\* The student is filling out personal information, academic records, and other required details.

- \*\*Possible Transitions:\*\*

- To \*\*Document Upload\*\* when the student has completed the application form.

- To \*\*Error\*\* if required fields are missing or incorrect information is provided.

3. \*\*Document Upload:\*\*

- \*\*Description:\*\* The student uploads necessary documents such as transcripts, letters of recommendation, personal essays, etc.

- \*\*Possible Transitions:\*\*

- To \*\*Reviewing Application\*\* when all documents are successfully uploaded.

- To \*\*Error\*\* if file formats are incorrect, documents are missing, or uploads fail.

4. \*\*Reviewing Application:\*\*

- \*\*Description:\*\* The student reviews all the information and documents provided.

- \*\*Possible Transitions:\*\*

- To \*\*Submitting Application\*\* when the student confirms the accuracy of the information.

- To \*\*Error\*\* if any inconsistencies or issues are found during the review.

5. \*\*Submitting Application:\*\*

- \*\*Description:\*\* The application is being submitted to the university.

- \*\*Possible Transitions:\*\*

- To \*\*Awaiting Response\*\* when the application is successfully submitted.

- To \*\*Error\*\* if there are server issues, incomplete data, or submission failures.

6. \*\*Awaiting Response:\*\*

- \*\*Description:\*\* The application has been submitted, and the student is waiting for a response from the university.

- \*\*Possible Transitions:\*\*

- To \*\*Application Approved\*\* if the application is accepted.

- To \*\*Application Rejected\*\* if the application is denied.

- To \*\*Error\*\* if there is a communication issue or delay in response.

7. \*\*Application Approved (Final State):\*\*

- \*\*Description:\*\* The application has been approved, and the student can now proceed with enrollment.

- \*\*Possible Transitions:\*\*

- No further transitions. The process ends here.

8. \*\*Application Rejected (Final State):\*\*

- \*\*Description:\*\* The application has been rejected by the university.

- \*\*Possible Transitions:\*\*

- No further transitions. The process ends here.

9. \*\*Error (Recovery State):\*\*

- \*\*Description:\*\* An error has occurred during one of the states.

- \*\*Possible Transitions:\*\*

- To the previous state after the error is resolved.

### \*\*Errors to Handle in Each State:\*\*

1. \*\*Filling Application:\*\*

- \*\*Missing Required Fields:\*\* Prompt the student to complete all required fields.

- \*\*Invalid Data Entry:\*\* Notify the student of incorrect data formats (e.g., invalid date of birth).

- \*\*Timeout:\*\* If the session times out, prompt the student to log back in and continue.

2. \*\*Document Upload:\*\*

- \*\*Incorrect File Format:\*\* Notify the student of acceptable file formats (e.g., PDF, DOCX).

- \*\*File Size Too Large:\*\* Notify the student if any document exceeds the allowed size.

- \*\*Upload Failure:\*\* Retry the upload or prompt the student to try again later.

3. \*\*Reviewing Application:\*\*

- \*\*Inconsistent Data:\*\* Alert the student if there are inconsistencies between entered data and uploaded documents.

- \*\*Missing Documents:\*\* Notify the student if any required documents are missing.

- \*\*Editing Blocked:\*\* Prevent the student from making changes after the review is completed unless prompted to edit by an error.

4. \*\*Submitting Application:\*\*

- \*\*Server Error:\*\* Notify the student of server issues and prompt for a retry.

- \*\*Incomplete Application:\*\* Alert the student if any required information or documents are missing before submission.

- \*\*Submission Timeout:\*\* If the submission process takes too long, prompt the student to try again.

5. \*\*Awaiting Response:\*\*

- \*\*Delayed Response:\*\* Notify the student if the response takes longer than expected.

- \*\*Communication Failure:\*\* Handle network issues or communication breakdowns and inform the student accordingly.

6. \*\*General Error Handling:\*\*

- \*\*Session Timeout:\*\* Prompt the student to log in again and resume the process.

- \*\*System Crash:\*\* Ensure that data is saved periodically to prevent loss in case of a system crash.

- \*\*Network Issues:\*\* Handle network connectivity problems and allow the student to resume from where they left off.

### \*\*Possible Outcomes (After Applying):\*\*

1. \*\*Application Approved:\*\*

- The student is notified of the acceptance.

- The system provides next steps for enrollment and registration.

2. \*\*Application Rejected:\*\*

- The student is notified of the rejection.

- The system may provide reasons for rejection and suggestions for future applications.

3. \*\*Application Incomplete:\*\*

- The student is notified that the application is incomplete.

- The system prompts the student to provide the missing information or documents.

4. \*\*Application in Review:\*\*

- The student is notified that the application is still under review.

- The system provides an estimated timeline for when the decision will be made.

This state machine helps in visualizing the entire process and ensures that the system can handle various scenarios and errors efficiently, guiding the student smoothly through the application process.