Project Outline: User input Video File Name and the Path to save the images -> convert video file to Frames -> convert Frames to Streams -> use Microsoft Face API to detect the Emotion -> count the emotion that happened the most times and return the emotion (String)

**Unit Testing** (Focuses on the internal processing logic and data structures)

* Test if the input file is .mp4.
* Test if the path that the user entered is valid.
* Test error handling when the user input is invalid

**Integration Testing** (Focus on modules)

Use bottom-up integration testing

We start testing with each lowest-level function.

* Test function (convert the video file to Frames, save frames to specific location)
* Test function (convert Frames to Streams)
* Test function (connect to Microsoft Face API)
* Test function (detect emotion)

**Validation Testing**

* Testing the whole project when the developers are not present
* Perform the test at the front end

**System Testing**

Performance testing:

* Test run-time performance of the project in converting video to Frames.
* Test run-time performance of the project in detecting the emotion