**Functional requirements:**

1. **The Robotic TA should be able to assist the students in home works, assignments and lectures.**

**Test case**

**Initial** (input): The input should be any query regarding assignment, lecture or home work.

**Execution:**

1. Obtain the query either through text or voice
2. Find the relevant topic from the course and solution
3. Provide the student with solution

**Final** (output): Robotic TA clarifies the student doubts regarding the course topics.

1. **Robotic TA should be able to grade the test and assignments**

**Test case**

**Initial (input):**  Input should be ungraded assignment or test paper

**Execution:**

1. Obtain the test paper or assignment
2. Verify the validity of the submitted document
3. Verify answers by comparing them with the key provided or course materials

**Final (Output):**  Graded paper of the student.

1. **Robotic TA should be able to understand voice, speech and text provided by students.**

**Test case**

**Initial (input):** Input data can be written text of students, voiced opinions/doubts by the students

**Execution:**

1. Listen to the voice or Read the written data submitted by student.
2. Understand the data either through speech recognition software/ open cv for text
3. Search the related data form course materials or lectures and provide answers.

**Final (output):** Provide the relevant answer for the query or doubt raised by the students wither through text or voice form.

**Non Functional requirements:**

1. **Responsive time**

The responsive time of the TA should be immediate and it shouldn’t cross the critical time period. If the query/question is regarding a lecture then it should be solved before the next lecture. So it won’t affect the student’s ability to cope up with the portions.

**Initial (input):**  Query regarding any lecture or assignment by the student.

**Execution:**

* 1. Obtain the query from the students.
  2. Search for relevant data or topic from lecture or the assignment key.
  3. Provide solution to the student before the end date of the assignment or the next lecture

**Final (output):** satisfying solution to the student

1. **Capacity**

The capacity of the Robotic TA to handle the request provided and executing them without fault or error throughput the course. This tests the robustness and the fault tolerance level of the Robotic TA.

**Initial (input):** sets of Input questions/data from the students

**Execution:**

1. obtain the query from the students
2. execute each and every single query without any error
3. come up with the solutions for the respective questions

**Final (output):** Solving multiple requests from the students with negligible or no error.

1. **adaptability**

The adaptability indicates the ability of the robotic TA to adapt to the changes in the course materials and not being completely useless if there are any modifications in course materials or the lectures.

**Initial (input):** Modified course material and content but relevant to the old one

**Execution:** After a question is raised regarding a homework/lecture the system should still be able to understand and come up with solutions to the query.

**Final (output):** Providing solution still if the course content is changed and the ability to adapt.

**Writing test cases helps in verifying the requirements:**

* Test cases are mainly written to verify whether the product meets the requirement of the client or the customer. Depending on the number of requirements the number of test cases may also vary. If a client wants a particular feature in his/her product then there should be a test case which tests whether that product has that particular feature and whether it is working as it is intended to be.
* In fact you can also say, the more detailed the requirements obtained the easier it would be to write the test case. If the requirements are not clear then the test case may not prove whether the product has that requirement or not.
* If there is a single engineer who can do both the requirement analysis and write test cases then it would be way too easy for him to relate what test cases can be used to test which requirement. Documenting the test cases with requirements can also help saving time.