GINA CODY School of Engineering and Computer Science Department of Computer Science and Software Engineering

Vision Document Phase 2

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1. Introduction

The purpose of this document is to collect, analyze, and define high-level needs and features of the E-Academy Web platform Application. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist. The details of how the E-Academy fulfills these needs are detailed in the use-case and supplementary specifications.

Scope

This Vision Document applies to the E-Academy web platform Application, which will be developed by The Best Team Ever. This system will allow students with difficulties to request or schedule tutoring sessions with specialized and qualified tutors, parents to track their children's progress and as a portal for tutor admissions for the service.

1.1 References

- 1. Proposal report Phase 1 -Team: Best team ever
- 2. SOEN 342 TUT 2 Extracting Requirements by Grammatical Parsing Vision Document
- 3. Risk Assessement sample
- 4. A. van Lamsweerde, *Requirements engineering: From system goals to UML models to software specifications*. Brantford, Ontario: W. Ross MacDonald School Resource Services Library, 2019.
- 5. "Earn money by creating and teaching online courses on Udemy. reach millions of students around the world," *Udemy*. [Online]. Available: https://www.udemy.com/teaching/. [Accessed: 01-Nov-2022].

2. Positioning

2.1. Problem Statement

The problem of	Students with difficulties or their parents not able to find the appropriate academic qualified resources in order to succeed at school.
Affects	Elementary school students High school students Cegep students Undergraduates and graduates students Tutors Students' parents Teachers
The impact of which is	Students with difficulties are unable to find qualified tutors for a specific topic without spending significant time searching for one in person or online. Many tutors will not get matched to student even if tutor is available Grades for student with difficulties would not improve over time
A successful solution would be	A simple,Web based application that can be easily used and accessed by students and academic staff. The system would provide: Students with means of requesting a qualified tutor for a specific topic.

Help qualified tutors get matched easier with a student and offer him in exchange a fixed salary based on the number of student the tutors has
Ensure the means for a efficient and responsive communication between tutor, student and/or parent
Provides means for student or tutors to access additional academic resources

2.2. Product Position Statement

For	Student with academic difficulties Student's parents Tutors	
Who	Have difficulties guetting match with a qualified tutors and tutors not able provide theri service because of the lack of representation in the student community	
The E-Academy	is a Web Based Software Application	
That	Provides the ability to tutors to get a guaranteed remuneration for their service as well as possibly getting tipped by students Provide Students to choose from a vast pool of qualified tutors Ensure that tutors have the needed qualification to teach a given topic	

	Provides a system that allows students or tutors to rent or buy textbooks from the website	
	Provides an archive section that will be use by tutors and student to share files	
	Personal section dedicated to parents where they can see notes left by the tutors and the student progress.	
	Provides access to a forum where questions can be posted and answered by tutors outside tutoring session.	
Unlike		
	Currently available systems that offer tutoring services do not include:	
	An archive section where Tutors may store information and academic resources related to student needs	
	A dedicatedl section for parents to keep track of their children's progress	
	A forum where student would be able to ask question anytime	
	A rental book service for students or tutors	
Our product		
	Offer the student to have access to help by providing qualified tutors backed by numerous academic resources and reliable communication means	

3. Stakeholder Descriptions

3.1. Stakeholder Summary

Name	Description	Responsibilities
Software Developer	The software developer will develop the structure of the website.	The software developer stakeholder is separated between the front-end and the back-end developers. The front-end developer will be responsible for creating all the portions of the website that are visible to the user. This can include the front page as well as any other pages on the website. The back-end developer will be responsible for creating all the portions of the website that aren't visible to the user. This may include actions such as payment transactions and appointment scheduling.
UI/UX Designer	The UI and UX designers will work closely with the software developers.	The UI and UX designers will help software developers design the user interface and help them make the website navigable, so that users have a pleasant experience
IT Infrastructure team	The IT infrastructure team will ensure that the website operates smoothly.	The IT infrastructure team will maintain the servers of the website as well as any databases that need to be

		maintained to ensure the website's functionality.
Requirement Analysts	The requirement analysts will work with other stakeholders to identify what the system needs to then formulate them into the requirements	The requirement analysts will model the objectives of the system and the behavior of the system. They will also state the different requirements needed as well as the domain of the project.
QA analysts	The QA analysts will look for flaws and defects in the system.	The QA analysts will conduct quality assurance tests throughout the whole duration of the project to ensure the product is working properly.
Project Manager	The project manager will be responsible of overseeing the entirety of the project	The project manager will manage and properly distribute the resources needed for the project. The project manager will also organize meetings and ensure proper communication between the different groups involved in the project.

3.2. User Summary

Name	Description	Responsibilities	Stakeholder
Tutors	The tutor is the person that will help the students in their various subjects that they may have difficulty in.	 Help students with homework Attend scheduled meetings Answer students' questions related to a specific subject Prepare mock exams for students Give feedback to parents relating to the progress of their child. Provide answer to forum question left by students Identify good answers in the forums that were left by other students 	Directly represented
Students	The student is the person that signed up for the tutoring service to get help with their homework or to better understand course information.	 Attend meetings with the tutor(s) Complete the milestones set by the tutors 	Directly represented

Parents	The parents are present to ensure that their child is properly progressing in his coursework.	 Attend meetings with tutors(optional) Link their child's account to theirs. 	Directly represented
Guests	Guests are users that have not registered for the E-Academy web application platform	- Read the content that is present on the website (optional)	Directly represented
Administrators /Managers	The administrators will oversee the operations of the website.	-Grant the different requisitions needed by users	Directly represented

3.3. User Environment

• Number of people involved in completing the task? Is this changing?

The E-Academy web application platform will be used by different types of people such as students, parents, tutors, guests and administrators. The user environment of the E-Academy web application platform is an ever changing one. There will always be a fluctuating number of people involved in completing the task as new users join our platform and some may leave it. At its core, there are at least going to be 2 people involved in the tutoring task. These 2 people are at least 1 tutor and at least 1 student. This is a number that

can change obviously because a student can have multiple tutors for different subjects and a tutor can have multiple students.

How long is a task cycle?

The task cycle usually takes 2 weeks as a student will need 1 week to prepare the questions he/she has for the tutor and another week to implement the information he learned in the previous tutoring session.

Amount of time spent in each activity. Is this changing?

Each activity has varying lengths needed in order to be completed. The length of the activity is dependent on the efficacy of the student and how quickly he/she can work with new information provided. The length of the program followed by a student can also change but is limited to a time frame of one semester.

• Any unique environmental constraints: mobile, outdoors, in-flight, and so on?

Some constraints of our tutoring service is that it is only available by accessing our website and that you need to be connected to the internet to use our service. In addition users are expected to have a browser

enabled device for viewing content. If they have devices capable of

• Which system platforms are in use today?

The primarly communication means between the student and tutors in current application relies on email platform such as gmail and a file storage and synchronization plateform such as google drive

In addition, currently, remote tutoring session are given through Zoom platform

• Future platforms?

Future platefrom may include self-taught academic plateform such as Udemy[5] where tutors may be able to upload an entire course and share it to the concerned sudent

• What other applications are in use?

Tutorax

Tutorat pro

Succès Scolaire

Does your application need to integrate with them?

No it does not need to be integrated with other applications.

3.4 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
User Registration	High	How will the users be registered? Will they register on their own or will the administrators register the users?	Users will be able to create only to submit student or parent registration form	Users will be able to create an account on the student/parents or the tutors registration form
Provide learning material	High	How will the learning material be distributed to the students?	Tutors need to provide files by email or in person	Users will have access to videos recorded by the tutors as well as files made by the tutors.
Scheduling management	High	How can we make sure that there are no conflicts between the tutors' schedules and the students' schedules?	See proposed solutions	Users will have a calendar where they will be able to schedule meetings with tutors as well as see the availability of others.
Question/General chat Forum	medium	How can students ask for help in certain subjects outside of their scheduled meetings with tutors?	See proposed solutions	Users will have access to a forum where they can ask questions at any time during the week.

Borrowing system for textbooks	low	How will students borrow textbooks?	None	Students or tutors will fill out a form in order to receive a book.
Parents section	Medium	How will the parents ensure that their children is progressing properly.	None	Parents will be able to track their child's progress on the milestone system.
Milestone system	Medium	How will the milestones be tracked?	None	The milestones will be tracked on a separate section of the website
Tip system for tutors	low	How are tutors going to receive extra compensation for exceptional work?	None	Students or parents will be able to tip their tutors a certain amount if the tutor's service is sensational.

4. Product Overview

4.1. Product Perspective

External view of the product

From the stakeholders' viewpoints, this system is described as an independent and totally-self contained system. There is no relationship with other systems. It will be built on its own. The website will be the only interface since all communication and interactions between users will be done through the platform. The Figure 1 below displays a block diagram showing the interaction between the system and the main stakeholders and users.

What is the product?

The product is a user-friendly web-based platform that integrates a smart, independent, and totally self-contained educational tutoring system. The products allow students to seek educational aid from tutors whose credentials are verified via administrators of the system.

What does the product do?

The platform is a solution for students who want to improve their academic performance. It offers a community and plenty of competent tutors who will be able to guide and help the academic performance of the users. It provides an online board where tutors will be able to post homework contents that are easily accessed by students and also an online whiteboard that is accessible for both students and tutors.

As a student, you can sign up and login to access the platform where you can use the different offered services. As a parent, you can sign up for your children, and keep track of their progress. As a tutor, you can sign up to offer your services. Students and parents will be able to request a tutor for all sorts of subjects, including Mathematics, Science, History, and many more. Students will be able to contact their tutors for help through the platform. If they have a question regarding a specific subject, they will be able to post their questions on a forum that is seen by everyone. Tutors will be able to reply to the thread. The platform also offers textbook and ebook services, where students can rent, buy, or sell books. There will be a space where tutors can share files and folders accessible to students. More about what the product offers in terms of features are explained in the below sections. These users can access this website from multiple devices such as computers, tablets and phones.

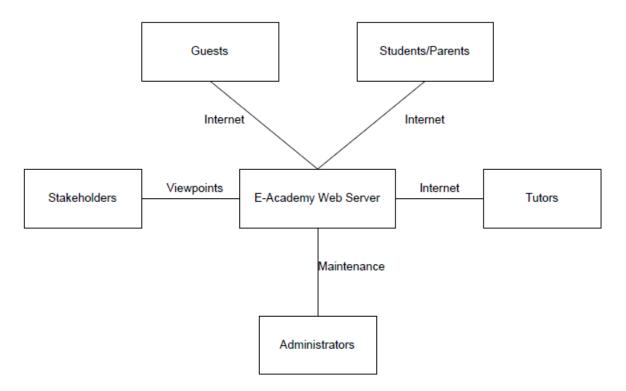


Figure 1. Block Diagram of the System

4.2. Assumptions and Dependencies

Assumptions	Dependencies
The general information content of the E-Academy website is displayed in english.	The guests know english.
The E-Academy content can be viewed on the website.	The user accesses the website through a compatible device via the Internet.
The tutor-user can offer their service on the website.	The tutor is competent, well-educated and verified by the administrators of the website.
The student/parent-user can access the website's resources and services.	The student/parent-user is signed-in on the website.
The parent-user can tip tutors on the website.	The parent has a valid payment method.

5. Product Features

5.1. Core Features

This section will be split into the different core users of the system to make finding the different features easier for the different members of the project.

Guests:

#1 General Information Sections: Guests on the website are allowed to access general information sections where they can see the different types of courses accessible on the website, the different tutors that work for E-Academy and where they can sign up as a student/parent or as tutors. Since every student has different needs, this is a necessary feature so that they can access our services and determine whether what we offer is good for them or not.

#2 Student Account Creation: Guests on the website are allowed to fill a form to request to become a student. This is the most basic account creation feature on the website as the guest only provides basic contact information and the account is automatically created. We need this feature so that students have the ability to sign up for our services and get in touch with one of our tutors.

#3 Tutor Account Creation: Guests on the website are allowed to fill a form to request a tutor account on the website, this request however has to pass to an admin that evaluates the candidacy and will interview the candidate and verify their credentials. This feature is necessary for the website since the tutors are the ones providing the services to the students. With this feature, tutors will be able to advertise their expertise and get in touch with the students in need.

#4 Parent Account Creation: Guests on the website can fill a form and create a parent account that is linked to a student account. For this type of account an admin will have to validate the identity of the parent and confirm the linking of the student and the parent account. Since some students may be too young to access our services by their own means, it is necessary for parents to be able to register their kids for classes and have direct communication with their tutors, if they wish to do so.

#5 Chatbox: Upon entering the website, guests will have access to a chatbox available 24/7 in order to help them navigate the website and answer any questions they may have. This is to ensure that the user is able to find all of the information they're looking for.

Students:

#6 Different types of tutoring options for students. They can choose between one-on-one tutoring or group tutoring. Private tutoring will cost more compared to group tutoring. Students can also choose between in-person tutoring or remote tutoring. This feature gives more flexibility to our website so that the student can obtain exactly the type of service that they are looking for. Furthermore, since we offer different types of services at different price points, our website will be accessible to a larger number of students. Therefore, it will bring more traction than other platforms offering only one type of service.

#7 A feature for students to choose their education level (elementary, secondary, college, university). Since some tutors may prefer to work with kids, whilst others prefer tutoring college level subjects, it is important for the student to indicate their educational level. The platform can then appropriately filter out the tutors and classes that are not suited for what the student is looking for.

#8 Archive containing useful information. Students following a class with the E-Academy have access to resources created by tutors to help them understand well the different materials that they are studying, there are videos as well as notes that are related to the students' classes.

#9 Upload/Download videos. Students using the website are allowed to download the multiple videos from the archive and use the resources available whenever they want. They are also allowed to upload videos, notes or exams to the website for tutors.

#10 Meeting with tutors. Upon Registration students will get matched to a tutor and they will be able to select or request time slots for tutoring sessions.

#11 Shared Board. During tutoring sessions students will have direct access to a shared board from which they will be able to draw and interact with the tutors from the E-Academy

#12 Students will be able to write a review about their experience with a certain tutor so that they can recommend their favorite tutors to future students. This feature will be limited to student accounts that have previously been associated with that tutor. This is necessary in order to fake reviews from people who have not had any experience with a certain tutor in the past.

#13 Outside of tutoring sessions, students can ask for homework help in a forum so that other students and tutors can answer in their free time. This is a useful feature so that students can help each other if their tutor is unavailable.

#14 Filing reports for bad behavior. Students should be able to file a report against a tutor if an issue occurred that requires administrative intervention. This way an administrator can assess the situation themselves and possibly removes a tutor's right to tutor on the platform.

#15 Textbook services. Students can buy and rent textbooks. Students can also sell their old textbooks to other students. This is a good feature for students to have since textbooks are very expensive and can be difficult to sell.

#16 Different tutoring languages. Students will be able to select their preferred language on their profile, which will filter the tutors to show only those able to teach in their preferred language.

#17 Summer classes: In order for students to prepare for their upcoming classes, students can choose to take summer classes in order to be better prepared for the school year.

#18 Students will have access to a calendar where they can see when their upcoming sessions are with all of their tutors and see any additional milestones that the tutor has set for them. This will help students organize themselves and not accidentally forget a session or milestone.

#19 Availabilities: Students are able to pick their availability for tutoring sessions so that they are properly matched to a tutor

Parents:

#20 Parent Board System. Parents can view their children's progress in different courses via a board which gives a summary of the grades and the progress done by the students. Parents who register their kids with a tutor may want to be able to track their kids progress as they learn if they wish to do so. Indeed, it is important for parents to be able to assess the effectiveness of tutoring on their kids.

#21 Built-in Mail Section. Parents can communicate with their children's different tutors and view the messages sent by the tutors. Parents should be able to monitor their children's interactions with the tutor to ensure that they are satisfied with the services being provided by the tutors and be able to contact them should they have any concerns.

#22 Filing a report: Parents should be able to report a tutor to an administrator if they believe that the tutor is acting unprofessionally or with malicious intent towards their child so that proper action can be taken.

#23 Tipping tutors: If a parent is impressed by a tutor's work on their kid, they can choose to give them a tip as a token of gratitude for their help. This will ensure a positive environment between the tutor parent and student.

Tutors:

#24 Different types of tutoring options for tutors. They can offer to only give virtual tutoring as well as in person tutoring. This is necessary as it allows tutors to provide their services in whichever way they are most comfortable doing.

#25 Different education levels. Tutors on the website can always apply for higher levels for education (elementary, secondary, college, university) when they apply. An admin has to verify their credential each time to make sure that members of staff all possess the right credentials. Depending on their knowledge, the tutor should be able to request students fit with the level of material that they are willing to tutor.

#26 Marking best answers. Tutors should be able to mark answers answered by students as "best answer" in the homework help forum. This is necessary to give assurance to the asker that their question was properly answered, despite being answered by a student.

#27 Ability to report a student. Tutors should be able to report a student for misbehavior if they believe that they have come on the platform with malicious intent and need administrative intervention to assess the situation.

#28 Marking milestones: Tutors can add milestones and goals for the student to reach. This feature can be important for some students since certain students work better when they have deadlines or goals to meet.

#29 Tutor bibliography: Students and parents may want to know more about the tutor that they will be hiring prior to agreeing to tutoring sessions. An easy way to accomplish that is to allow the tutors to write a paragraph describing themselves, their accomplishments, their credentials and who they are overall as an individual.

#30 Fairs: Tutors should be able to set their own fairs based on their experience. They should also be able to provide a free session should they want to do so. The website will also have a recommended fee based on what other tutors are offering. This allows flexibility for the tutor and lets them judge their own competency in their teaching experience.

#31 Availabilities: Tutors should be able to select time slots for tutoring times which will be later used by administrators of the system.

Administrators/Managers:

#32 Authorization of tutor accounts. Administrators will take care of the authorization of tutor accounts as well as the verification of their credentials.

#33 Authorization of student-parent links. Administrators will have the ability to authorize the link between a student and parent account to validate that they are actually family members.

#34 Student and Tutor Link. Administrators of the system will have access to the student and tutor's schedule and will provide students with a date in which they can do their one-on-one tutoring, in the case of group tutoring different dates are offered by the different tutors so they are sent by the tutor to the student.

#35 Ban students, tutors and parents. Administrators will be able to remove a student's access to their services or a tutor's right to tutor if they show behavior that goes against their terms and conditions. This will ensure that exchanges between the student and tutor remain respectful and professional.

#36 Access to any student and tutor information. Administrators will have access to all of the content and message exchanges between the student, tutor and parent. This way an administrator can look through their history if a report was filed and take appropriate actions.

5.2. Other Product Requirements

#1 The platform will need to be easy to use for young students so therefore have a familiar UI that is not complicated.

#2 The hardware used to host the website will need to be robust to be able to host multiple tutoring sessions at the same time on the website's resources.

#3 To add more functionality the website needs to have multi-lingual functionalities.

#4 The website will need to use Shopify's buying features for the different payment measures.

#5 The website should be up at least 97% of the time during tutoring hours (8 AM-10 PM). Updates to the system and the website can be done from 12 am to 5 am

#6 The website should be able to perform and be parsed similarly on every common web browser (Edge, Chrome, Safari, Firefox, Opera) and operating system (MacOS, Linux, Microsoft Windows) to ensure a robust system.

#7 Security, A user, tutor or parent's personal information such as phone number, location, password and payment information should never be accessible to the public.

#8 The website should do frequent back ups to their components so that any failing component can be immediately replaced with a backup component to ensure that the website keeps running even in the event of a component failure.

#9 To make the website more accessible it should be able to run on most machines/cpus so that the platform is accessible to as many students as possible.

6. Risk and Feasibility

Risk	Risk Level L/M/H	Likelihood of Event	Mitigation Strategy
Person Hours	H: Over 1600 hours	Certainty	Designated project leader who requires a broad project management approach to planning, tracking and managing and communicating plans
Estimated Project Schedule	H: Over 10 weeks	Certainty Create a comprehensive project timeline wi frequent baseline reviews Aa WBS	
Team Size at Peak	H: 10 members	Certainty	Scrum meetings, strict project management oversight, managing dependencies,
Number of Interfaces to Existing Systems Affected	L: Only 1 interface	Unlikely	Since one interface will still be used, an interface control document needs to be developed
Available documentatio n	L: Almost done	Unlikely	Team members will be responsible for collecting and reviewing information
Lack of communicatio n, causing lack of clarity and confusion.	M:	Somewhat likely	Write a communication plan that includes the frequency, target, and audience for each communication. Identify stakeholders early and make sure they are viewed as a communication plan.

Project Scope Creep	L: Scope already defined	Unlikely	Scope is initially defined in the project plan, reviewed weekly to prevent undetected scope creep, and occasionally needs analysis with the client
Run tasks in parallel	H: risk of errors	Certainty	Share the timeline with key stakeholders to reduce the risk of this happening, and patiently explain that the timeline was developed using the expertise of subject matter experts
Unmet expectations	L: Inaccurate estimations	Unlikely	Clarify the likelihood of estimations
Project Deliverables(pressure to work in risk)	M: Estimated, not clearly defined	Somewhat likely	Ensure client decision makers with budget authority are identified before the project begins
Cost Estimation	M : Not Defined.	Somewhat likely	N/A
Number of Team Members Unknowledge able of Business	H: Team members has no clue	Unlikely	Project leaders and clients need to identify potential risks and need to take action to train everyone on-the-fly.
System test carried out inaccurately	H: Failure in detecting system errors	Certainty	It has to be performed on real data and needs to be verified for adequacy and completeness before testers start working
Team member may	L: Current member attrition is 0%	Unlikely	N/A

leave the project			
Delay in earlier project phases	L: No delays	Unlikely	Use scheduling workshops and work breakdown structures to ensure project planning is as accurate as possible. Use Tracking Gantt and Baseline to identify schedule slippage early.
Quality Management Procedures unclear	L: Well-defined and accepted	Unlikely	N/A
Team's Lack of Knowledge of Package	M: Conceptual understandin g	Somewhat likely	Project Plan will assist the team in better understanding the package offering
How users respond	H: Development risk	Certainty	Test software ahead of time with beta testing and user testing, and frequently send surveys to users as well as conducting focus groups to gather information about users
Security Risk	H: Not Taken (At risk)	Certainty	Improved Authentication,authorization,confidentiality and accountability
External risks	L: unpredictable factors	Unlikely	Need to be aware of risks so that teams have time to prepare for them before they occur

Technical Feasibility:

Assessing technical feasibility is an assessment of whether the new system will function adequately and whether the organization has the capability to build the proposed system. A technology assessment helps answer questions such as whether the technology required for

the system exists, how difficult it is to build, and whether the company has enough experience with the technology.

In order to develop a new system, a team must research and evaluate technology providers, assess the system's dependability and competitiveness, identify the technological limitations, and assess the risk of the proposed system, which is dependent on the system's size, complexity, and the group's prior experience developing systems of a similar nature.

- 1. **Project Size:** Project size can be determined by the number of project team members, the undefined duration of the project, the number of departments involved, or the amount of programming effort.
- 2. **Project Structure:** Projects whose requirements are highly structured and well-defined have lower risk than projects whose requirements are judged by individuals.
- 3. **Familiarity with Technology or Application area:** The project is less risky if the developers and user base are familiar with the technology and systems. Therefore, if the development team uses standard development tools and hardware environment, the risk will be less.

Organizational feasibility:

Organizational viability depends on the human resources available to the project and involves predicting whether the system will be used if it is developed and implemented. There are few risk to launch this e-platform which is

- 1. Availability of affordable space.
- 2. Willingness of high quality and skilled employees to join the firm.
- 3. Possibility of obtaining intellectual property protection in key areas.

Financial Feasibility:

Since it's a web application, it needs to be hosted. Because the system does not support multimedia data transfer, the bandwidth required to run this application is very low.

The system will adhere to the standards for freeware software. Prospective clients will not be charged any fees. There will be maintenance and bug fixing costs involved. The initial target market will be the nearby universities and other higher education institutions.

There is no charge for creating statistical reports as report generation is fully automated.

From these it's clear that the project is financially feasible.

7. Use Case Diagram

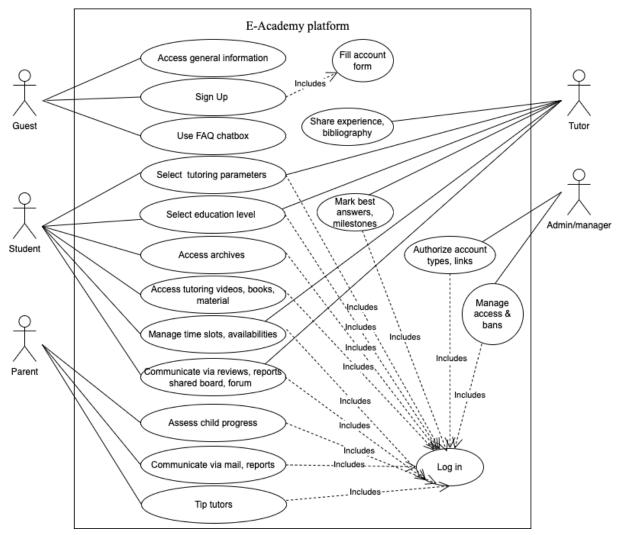


Figure 2. Use Cases Diagram