Vision Document



# **1. Introduction**

The purpose of this document is to describe the positioning of the product, the stakeholders involved, the product overview, features, and requirements of the Smart Star software solution.

Smart Star is an e-academy platform that allows students to pair up with tutors to receive assistance with schoolwork. Students would be able to browse tutors, and schedule meetings with them during time slots that are convenient for both.

## **1.1 References**

Example of Risks and mitigation plans, October 2nd, 2022, Moodle Soen 342

chegg vasitpry tutors, Chegg Inc, <https://www.chegg.com/study>

Gradesavers, Digiclimber, <https://gradesavers.com/>

# **2. Positioning**

## **2.1. Problem Statement**

This project aims to solve the problem of finding tutors to help students with schoolwork online. The lack of an efficient application for finding and setting up tutoring sessions affects students, especially those who struggle to keep up with schoolwork by themselves, and their parents who struggle to find the help their child may need. There is also a lack of an application which allows users to apply to become a tutor to offer their tutoring services. This affects aspiring tutors who may be qualified to offer tutoring but do not know how to get in touch with the students and parents. The impact of this problem is that students in need of tutoring are struggling to find quality tutors and potential tutors who could possibly help these students are not able to get in touch with them. A successful solution would be to design an application that serves as a link between potential tutors and students in need and their parents. This application will work as a line of communication between the tutors and the students or parents. It will help students or parents browse for available tutors with respect to the subjects offered, grade level and serve as a platform for offering the tutoring services.

## **2.2. Product Position Statement**

The target customers for this product are students and their parents looking for tutoring services. Additionally, this product allows potential tutors to apply to become a tutor on the application. The system will satisfy the students and parents need to be matched with quality tutors online depending on their grade level and the subjects they need tutoring in. It will in turn give tutors a platform for offering their services. Smart Star is an online tutoring service application that helps browse available tutors online and allows selecting tutors, booking their services, communicating with the tutors, and receiving the tutoring through video all in one application. Unlike competitive systems, our product allows for users to apply to become a tutor by providing the functionality to apply or a CV. Our application also provides functionality for filtering tutors to help students find the best match for their needs.

# **3. Stakeholder Descriptions**

## **3.1. Stakeholder Summary**

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| --- | --- | --- |
| Name | Description | Responsibilities |
| **Teachers** | People who have specialized in specific subjects to be able to teach the material to their students | These stakeholders willaccess the site to see what courses are being offered on our site to suggest our services to their students in need, informing us if we have mentioned all the correct information and details a parent might what to search for when looking up academic courses. |
| **Chegg** | An existing platform that provides multiple resources to help students succeed in school | Our platform will be compared to Chegg and their resources to ensure that we are providing an adequate services and that there is a market demand for our solution |
| **Developers** | The engineers/people that are developing the platform | They will ensure all problems are solved, that the system is maintainable, that all desired aspects to the platform are implemented and intuitive for the user |

## **3.2. User Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Description | Responsibilities | Stakeholder |
| **Students** | People that go to school any age from elementary through university undergraduate programs | Tosearch for potential classes they need help with selecting a tutor that best fits their needs, using the given filters to refine their search | The students themselves |
| **Tutors** | People that are proficient in certain subject and transmit their knowledge to help/ teach others | Being able to post their services or apply to be part of the platform, add their biographies and personal information to be contactable | The tutors themselves |
| **Administrators** | People that are taking using the website as well as looking after it | The administrators have for responsibilities to make sure the website is running as intended, they are updating the tutor lists and managing the evaluations of new tutors | The administrators themselves |

## **3.3. User Environment**

The working environment of the target user can be broken down into many aspects. Starting with the number of people involved in completing the target users’ task can be 1 person who is booking a tutoring session for themself or 2 people if the target user is too young and has a parent book for them. In this system a task cycle can be booking a session, and this would take around 4 different steps:

1. Search for subject
2. Match with a tutor
3. Find a time that works best in both the tutor and the student’s schedule
4. Book session

Amount of time spent in each activity is as follows:

It should take not more than 15-20 min depending on how thorough or picky the user needs their search to be to complete all tasks. The first task which is searching for a course subject should take not more than 2 min. The second task which is matching with a tutor, should take 5-10 minutes because the user would need to read the ratings and backgrounds of each available tutor and see which tutor best fits their needs. The third task which is finding a time slot to book the session should take 3 min. The fourth task which is booking the session should take 1-2 min.

To add, there are no unique environmental constraints since the platform is online and is offering online tutoring therefore the users should have access to internet/Wi-Fi and should have a mobile or computer device to be able to book and attend the session.

There are many different applications, web platforms and websites that offer tutoring services such as Vasity tutors, Gradesavers, Kumon tutoring that are all tutoring platforms that exist and are different in their own ways. These different tutoring platforms are self-sufficient and so is this platform, our platform does not depend on other system platforms, it has its own tutor repertoire as well as its own list of courses being offered. Therefore, no need to connect with existing platforms.

## **3.4 Key Stakeholder or User Needs**

Students often find it hard to find affordable tutors that are of good quality as well as qualified. However, it is not just many and qualifications it is also their character and how the teach or interact with the specific student. If a student wants to a find a good tutor that fits their needs and resources (money, time), they have to look through many different tutors that might be filtered for the subject but not resources. How this is solved is by seeing a picture of them or seeing their background of projects and experience in the real world as well as the schools they studied at. We would solve this problem by creating a profile of the tutor with their interests their past experiences, projects, short biography to introduce them to ensure that the student feels that they will be able to have a pleasant experience with the tutor they will select. Our system solves this issue by also allowing the user to have multiple filter which would allow them to easily and quickly find the right tutor for them.

A second problem our system would solve is the student retaining what they have learnt in their session with the tutor or keeping track of their progress. Meaning sometimes a student will meet with a tutor once a month or only when they need so having a record of what they covered and how the tutee did is a great way to track progress and not waste time reviewing what was covered previously. Also, students often forget what happens in a tutoring session maybe due to stress or being intimidated to ask further questions when they don’t quite understand so having a recording of the session, they have undergone would be useful and helpful the tutee. Other systems allow the tutee to leave with notes written by the tutor or the tutors make their own booklets of questions that they solve together in the session to take home, which does not 100% take into consideration that the tutee will remember exactly what was said or explained. Our platform solves this issue by allowing the user to access the recordings of all their sections with their tutors in a special section unique for each user where they can find the recording they need and re-watch it. The user wants a solution that will help them easily find what they learned during their session without having to ask the tutor again.

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| --- | --- | --- | --- | --- |
| Need | Priority | Concerns | Current Solution | Proposed Solution**s** |
| Affordable service | This is not of top priority but think it is necessary to consider when building the platform | That the platform does not make enough profit when adhering to our users’ financial needs | Having different selections of subscriptions to choose from | Having filters of price ranges to get a list of tutors in your price range |
| User friendly | This is high priority because if the system is not user friendly then we will not attract as many users to use our platform | Having the platform content and organization be universal for all ages and all types of users | Having a French and English translation tab, selecting your age before accessing the platform so that the information is tailored to the user searching | Having adapted out content vocabulary and keeping everything visual with more representations than plaintext so that the platform is more interactive and easier to understand |
| Retaining notes and explanations discussed in session | This is of high priority since students find it very helpful to always go back to a specific part of the session when go over the material on their own | Concerns of this is that if the user does keep the material and it is a paid service, they may share it with friends that did not pay and they would receive a copy of the notes or recording of the sessions free. | Tutors make their own booklets of notes or take notes during the session and send it to their tutee. | Having the tutoring session being recorded and saved on a virtual class folder with the tutees login on our platform that only the student can access and can’t download or send |

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# **4. Product Overview**

## **4.1. Product Perspective**

The Smart Star online e-academy platform is accessible to users through its website. It allows students and parents to effortlessly find a tutor through searching and browsing on the platform, and it also allows for scheduling of tutoring sessions. It allows qualified potential tutors to easily sign up to be listed on the platform. All of the features offered by Smart Star do not depend on or require any other product.

Smart Star does not use or interact with any other services or products. It does not require the use of any other service or product, except for an internet-connected computer or mobile device capable of browsing the web. Therefore, Smart Star is a self-contained and independent product.

## **4.2. Assumptions and Dependencies**

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| --- | --- |
| Assumptions | Dependencies |
| We exclusively provide our platform as a web-based service. We assume that all our users, including students and teachers, have the necessary technical equipment to visit our website and participate in audio/video conversations*.* | Website access is determined by the specs of the user's computer, peripherals, and internet speed. |
| We are especially interested in students in high school, cegep, and university in Canada. We will be providing tutoring in both English and French. User can change the language of the website: Switch between English and French. And default language of the website would be selected according to the region of a user. | It is presumed that those who use our services are fluent in either English or French. |
| We only take online payments as a service, such as VISA, MasterCard, and PayPal. We assume that the user can pay via one of these methods. We do not accept cash or mail-in checks. | Users who are unable to pay using these ways will not be able to receive tutoring, but they will be able to browse our websites, look at tutors and ratings. |
| Our primary market segment is Canadian academic institutions. As a Web application, we still allow users from all over the world to access our website and join up, but we cannot provide them with a tutor from the same institution. | Our understanding of courses and exams is confined to the academic institution with which we are familiar. |

# **5. Product Features**

# **5.1. Core Features**

In E-Academy system, each user whether they be guest, students or tutors would need to have access to certain sets of features tailored to their needs. These core features can be divided for each type of user. These features are therefore, the most essential and important part of the user experience of the E-academy system.

# **5.1.1 Students**

The importance of expediting the matching process between students and tutors will remain a core priority in the context of this project. As such, the core features, as they relate to students, will primarily revolve around their experience in using the site. Therefore, from a student point of view, their core features will revolve around:

* Creation of a custom and personalize profile
  + Linking this core feature back to the matching process, if a student is already aware of the specific subjects, they are seeking help in, this can be a rapid method of quickly filtering tutors with no relevance to the student’s suggestion and to find them a match more quickly specific to their educational needs.
  + The creation of said custom profile should be emphasised and presented to the student when first logging into the service. The system must therefore be capable of securely storing personal student information in a manner where all users will be certain their data is only being used to find them more relevant matches, without taking a substantial hit to overall system performance.
  + The system must therefore limit how far the student can have access to the subsequent pages available on the site until a custom profile has been created. This is made for the purposes of not having an ‘anonymous’ student. For a curated experience to be present, the student must therefore have an idea of what subjects they are seeking help in and be comfortable sharing this information on the site.
* Tutor Matching and Selection
  + Once a specific area of study has been identified, the student should be available to browse and select the tutor they feel will best meet their needs.
  + From reading the tutor’s profile or by looking at overall tutor availability for their desired time slot, the tutor which best meets the needs of a student should be displayed with priority based on the data entered in their custom student profile.
  + The system must therefore be able to analyse the data which has been entered in a student’s profile, display results relevant to said inputs and filter the results to aid students in choosing a tutor.
* Scheduling and payment assistant
  + Students often have many commitments in their life which are not always necessarily related to academics. Therefore, in order for the service to see long-term use and satisfaction in students, multiple time options of when a tutor in their specific area of need is available should be presented.
  + The system should therefore be capable of storing tutor availability and displaying this information to students in an easy-to-use and visual way. The student would therefore be free to choose the time slots they feel most content with based around their individual availability.
  + If a specific tutor is being sought after, the student should also be able to filter the schedule to display the availability of a wanted tutor.
  + The system must also provide a secure way for students to pay their tutor for the sessions utilised. This is to be implemented by asking the student for payment information when initially setting up their profile. The price of each session a student has partaken in is equally to be displayed for students to better manage their finances and better breakdown the money they are spending whilst using the tutoring services.

# **5.1.2 Tutors**

The other side of the coin of any E-Academy platform is the quality, availability and overall choice of tutors available. If students feel they are not getting their money’s worth, too few tutors are available to choose from or tutors are not as knowledgeable in their area of expertise, the student may be enticed to use a competing platform. Therefore, certain core features, as they relate to tutors, can be extrapolated to ensure overall platform-wide tutor quality.

* Creation of custom profile with credential check
  + In parallel to the profile creation process of a student, tutors also can list the subject areas they feel most comfortable tutoring students in.
  + What sets the tutor profile creation process apart is the fact that tutors must have a certain amount of education before being available to tutor students.
  + Most commonly, at least a high-school level degree is required to tutor high-school level students and below, and either the tutor being enrolled in an undergraduate degree or having completed a higher-education degree for them to tutor university level courses.
  + The system must therefore be able to verify a tutor’s credentials through a validation process, store the tutor’s teaching area of choice and ask the tutor for their time availability.
* Session management
  + Tutors may be in the position where they are tutoring multiple different students a day. Displaying their upcoming commitments in a succinct way based on the sessions they have accepted must be present to help the tutor better keep track of their commitments.
  + Tutors should therefore be able to keep track of their upcoming meetings and have access to the student’s profile prior to their meeting to better curate the session to address the student’s needs.
  + Additionally, any incoming requests for new tutoring sessions should be communicated to the tutor so that they have the option to accept or deny any tutoring requests based on their availability.
  + The system should therefore be able to display the tutor’s existing schedule, display a student’s profile prior to their session and notify the tutor of any new tutoring opportunities the tutor may be interested in accepting.
* Statistics summary, payment breakdown and rate selection.
  + For the tutors to feel that they are being compensated appropriately for the level of effort they are putting in, a breakdown of the work they have achieved and the pay they have accrued is to be displayed to the tutor in a personalised summary dashboard.
  + Each session a tutor has therefore partaken in will display the amount of money they have earned, notwithstanding the cut of the fees the service takes in to keep the website operational.
  + Once a tutor has gathered enough experience, they may feel that the rate they are charging students should increase. Therefore, the rate a tutor wishes to charge students for their services should be made available to them.
  + The system will therefore be able to track the sessions the tutor has partaken in, the amount of money they have generated and the option for tutors to change the hourly rate a student will be charged for a session with them.

**5.1.3 Guests**

Guest users will remain an integral part of how the E-Academy platform is able to persuade new students to use their services. Before committing to a payment, parents and students may want to browse the website to see if the specific subject they are wanting tutoring in is available, the number of tutors available and if the rate the tutors charge matches a monetary amount, they are comfortable spending.

* Viewing and browsing the website
  + Before committing to the use of the platform, guest users should be able to view all the different courses on offer by tutors and also browse the list of available tutors if the subject they are seeking help in is offered.
  + When browsing for tutors to match with, the tutor’s hourly rate should be on display for guest users. Additionally, a range of all the available rates should also be displayed on a per-subject basis. In this way, if the user does decide to use the service, they will not be taken aback by the price of the service, as they have already become familiar with the pricing of each tutor.
  + As the guest user has not yet created a personalised profile and entered their payment information, they will not be permitted to book a session with a tutor. This is to ensure that at least some level of information from the student can be ascertained by a tutor prior to a session taking place.
  + The system will therefore not permit guest users from booking sessions but will allow them to browse the website and its many pages to better become acquainted with the services on offer and the price being asked.
  + Access to subpages, such as the FAQ Section and the Contact Us page will also be made available to guest users, regardless of whether they have created an account. In this way, potential users will have a way of quickly discerning if the services on offer are what the guest user is needing.
  + The system should therefore be able to ascertain whether a person on the site is a guest user, block certain site features, such as registration to a session with a tutor if using a guest account and also provide access to different parts of the website to guest users.

# **5.2. Other Product Requirements**

# **5.2.1 Platform and Documentation Requirements**

Other than the core features as described in section 5.1, certain product requirements will need to be implemented to ensure that the core features can function as intended, these additional product requirements include:

* Login: All users and roles must be able to sign into their accounts whether it be with their username or email or password. This also requires allowing logins from external services such as through a Gmail account.

* Password Reset: All accounts must be able to reset their passwords. This should be done with a button at the login page indicating that the password can be reset. Then the users should be able to enter their email in a form with the user then

receiving a password link to their email address to reset said password.

* Scheduler/Calendar: Tutors and students should be able to access a tool that would allow them to display the meeting times in order to schedule meetings between the two along with being able to see the meeting times that were set. This requirement would be in the form of a web calendar that would display all the meetings that the user is scheduled for, whether they are a tutor or student.
* Interactive Online Whiteboard: Tutors and students should be able to access a virtual whiteboard when they are in a meeting. The whiteboard would include a virtual dashboard with coloured markers to draw, erasers to remove markings and a save button to keep track of what was written for future review.
* Recording: Students should be able to access the session recordings when they need to. This could be for reviewing or practice purposes. This would be implemented by having a button on the dashboard where either the student or the tutor can press, and this would send a notice to the other about the session being recorded.
* Upload of documents/file share: Tutors and students alike should be able to upload and download documents in the meeting page whenever needed. When in a meeting, the documents list should be displayed alongside the whiteboard so that either students or tutors can upload or download documents.
* Profile Creation/Initial registration: All roles must be capable of creating an account. This would be done with a form to sign up with a name, an email, and a password. There should also be a button to sign up with external services like Google or Facebook. This will be done with the user’s information and said information is retrieved from their external account.
* FAQ Page & Contact Us: All users should be able to see the FAQ Page by clicking the button on the dashboard that redirects them to that page. The page should not only display frequently asked questions with their answers but also the contact information of the site.

# **5.2.2 Quality Ranges and Constraints**

By defining the quality ranges and constraints as they relate to the core product features, a better understanding of the acceptable tolerances can be established, helping in better prioritising and delegating tasks.

* Performance: Overall system performance should never fall below a level in which the dissemination of a tutoring session is in jeopardy due to an overload of requests. System performance should always ensure that a student can access their tutoring sessions at the time they have requested. This is to be accomplished by carefully monitoring the overall load of requests made at any one time to the website, offloading potential hosting and infrastructure costs to third-party providers, such as AWS, and agreeing on a minimum acceptable performance threshold. This performance threshold can be measured in terms of the time it takes for a system request to be acknowledged and an appropriate response sent back to the client.
* Fault Tolerance: Overall system fault tolerance, as it relates to faults originating due to inadequacies in our system, will be kept to a minimum level as to not negatively impact a student’s experience whilst using our service. In other terms, the fault tolerance of the site, similar to system performance, will be closely monitored to ensure no one client can longer access the service due to an exuberant number of faults. This is to be accomplished by testing the system before deployment, updating the system to use the latest in fault tolerance reduction methods and hosting the site and its various services on trusted third-party infrastructure if the solution is not possible to be implemented in-house.
* Usability and Accessibility: Taking into consideration students and tutors who may have disabilities, the design of the site will be made through the concept of accessible design. By being conscious of how colour, size, layout and design elements are perceived by all people who visit the site, this will create a site in which all potential customers or contributors feel respected and heard. This can be accomplished, for example, by implementing a text-to-speech option for the visually impaired, ensuring no fast-scrolling text with bright or flashing lights are present on the site and using gender-neutral language when writing product or service descriptions will ensure that the minimum quality range for the usability the site is always respect.
* System Constraints and Dependencies: The main system constraints and dependencies can be broken down to more detailed sub-sections:
  + Budget: Of all the constraints to take into consideration whilst wanting to implement all the core features described in this section, breaking down the associated costs and the price of maintenance will take the forefront of decisions closer to the release date of the service. Through adjustments in the scope, features, and amount of who can be active on the site at any one time, these decisions have the potential of causing large changes to the budget allocated to the completion of the project.
  + Time and Scope: Whilst the vision document helps in clearly layout out all of the ideal features to better position our service offering in the market, the scope may need to be adjusted to better reflect the time when the service is to be made available to the public and the actual amount of time it will take to implement all of the product features once programming starts.
  + Reliance on third-party services: Some of the desired features of the site may find the most cost-effective solutions by using the specialised services of other companies. This would mean that the quality ranges of the site would be in direct correlation with the quality of the service provided to us by the third-party. Such services could include hosting the site through a known large-scale web hosting company or the use of technical consultants when implementing features in which no group member has the expertise.

# **5.2.3 Priority of Requirements**

* The priority of the requirements begins with being able to sign up and login into their user accounts if they are users. If they are guest, this priority changes to allowing said guest the appropriate access to view and tour the E-academy system. This is the most useful requirement as the E-academy system wouldn’t be able to function without it.
* Second, the ability to have the scheduler/calendar available as it assures stability between the students and the tutor and therefore, doesn’t create confusion.
* Third, is the recording requirement as it is highly beneficial to students who would want to be able to go back and review or check up on material that they are entirely sure about. Furthermore, this would allow for constant improvements as the data from the recordings would be used to improve services, but this would also present a risk as recordings must be consented to and not kept a secret or forced.
* Fourth, is the interactive online whiteboard as it is also very beneficial to students and tutors as it would allow for more one-on-one help. This requirement would increase the effort from both tutors and students to engage with each other.
* Uploading and sharing documents are the fifth in the priority of requirements as this is another important feature since all users would certainly like to be able to share documents between each other. This can be for pdfs or word documents containing practice numbers, theory explanation or examples for certain topics that the student would like to get more familiar with.

# **6. Risk and Feasibility**

**6.1. Risk processing and Mitigation Strategy**

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| Risk | Risk Level (L/M/H) | Likelihood | Mitigation Strategy |
| **Project Definition (Process)** | | | |
| Scope Creep (additional scope is added uncontrollably) | L: Scope must be defined, but can be revised | Unlikely | Scope is defined in a scope document and is reviewed periodically by the project manager. |
| Erroneous Cost Estimates | L: Within 10% of estimates | Unlikely | Estimates can be revised based on new information about the scope |
| **Software Vendor (Process)** | | | |
| Poor Team Knowledge of Technologies Used | M: Only general understanding | Unlikely | Technology is selected based on existing team experience and knowledge. |
| **Software Reliability (Domain)** | | | |
| Website becomes unavailable to users due to a server crash or other reasons. | H: Less than 99% uptime SLA | Unlikely | Design software architecture with redundant web hosts so that the risk of the website going down is minimised. |
| Tutors are unable to receive their payments | H: Less than 99% uptime SLA | Unlikely | The payment for the tutors will go through a 3rd party service (e.g., PayPal). In case the main payment service goes down, other payment alternatives are offered. |
| Payment service becomes unavailable to students due to third-party downtime. | H: Less than 99% uptime SLA | Unlikely | Payment services have their guaranteed SLAs. In addition, having multiple payment options allows users to use another payment type when one is down. |

**6.2. Feasibility**

Considering the scope of the project and the varying level of expertise our group has in regard to application implementation, this project is technically feasible. However, due to the varying strengths of the team, the familiarity with the technology and frameworks needed this can pose a potential risk but can be overcome throughout the development. The application will require on going scalability to slowly increase the size of the database to hold the information of students and teachers. This will create a potential risk for this project however it can be accommodated as the size of the user population grows.

Before building this application, we must first consider if there is any value in building such an application. With the rising number of students with access to education, there are more and more students that require extra support outside of their institution. This number has also increased since the pandemic as remote schooling had made more students more comfortable with using an online platform for education purposes rather than being taught in person. People are also willing to pay for such convenience because a service such as this can help them succeed without having the overhead time costs of leaving their homes and commuting to their tutors’ homes. However, one of the risk factors are how much a person is willing to pay for such a service. Another risk to consider is how many users will commit to using the service regularly on a weekly basis. There is also the consideration that the service may have a time of year where less users are active on the platform, for example summer vacation. This can cause a reduction in profits for a period. However, this platform will be more profitable than its cost to make due to the necessity of such a service thus providing a positive return on investment and making it economically feasible.

# **7. Use Case Diagram**

