The AI Educators:

Requirements Report

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SSW-564 Software Requirements Analysis and Engineering

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**Mission Statement:**

Our product is an AI-driven learning platform that will transform the way students acquire knowledge. The problem we identified was that :

Traditional education often follows a one-size-fits-all approach, which can leave students struggling to reach their full potential.

Our product seeks to bridge this gap by seamlessly integrating with established educational platforms. We aspire to revolutionize education through our AI-driven learning platform. Our goal is to create a personalized and engaging learning environment that empowers educators while ensuring data security, privacy, and compliance with regulations, thereby ensuring that the learning environment is trustworthy.

Thus from the company perspective, the mission is to:

*“Provide personalized learning to all who seek to learn using Artificial Intelligence”*

However from the product perspective the mission is to:

*“Create an AI-driven learning platform that will integrate with and upgrade the existing educational platform such that it adapts and personalizes based on each student’s unique need and learning preference”*

With our mission statements formed we can begin performing our requirements engineering processes. First we will analyze our stakeholders, drivers, and constraints, then we will perform the requirements analysis, elicitation and validation. To conclude we will document our interviews with potential customers.

**Stakeholders:**

1. Educational Institutions  
   Educational Institutes will serve as the primary customer as they are the sponsors for this product. Every modern educational institute, be it tutoring centers or recognized schools, has two things : past records of students with utmost detail and an interface through which students can interact. Meaning all modern institutes already have data and software. We will be using this data to train our AI model and will be upgrading the existing software with our product
2. Students  
   Students will serve as one of the direct users and a favored user class. The product is catered to improve the learning experience of students. Students will benefit from AI assistance securely embedded within the platform.
3. Educators/Professors  
   Educators/Professors will serve as one of the direct users and a favored user class. Educators/ Professors will be able to customize the system to align with their unique teaching methods and objectives, allowing for a more tailored educational experience. Thus, they will have access to fine tune certain aspects of the model.
4. Parents/Guardians  
   Parents/Guardians sponsor the education of their respective children and thereby will serve as the indirect users of the product. Their use of the system will be infrequent at best however the product will enhance their experience as well, of understanding the in-depth growth/ development of their child though reports.
5. AI Developers/Engineers  
   AI Developers/Engineers are individuals responsible for training the AI model as well as integrating it with the current platform. All control-flow logic and user interfaces will have to be developed and maintained by them.
6. Administrators  
   As there are many users of the product, it becomes critical to provide access based on need-only to prevent misuse of the system. Administrators are individuals who will maintain the authentication and authorization process of the product so as to maintain security and integrity.
7. Regulatory Bodies  
   Regulatory Bodies will be a group of individuals responsible for maintaining and ensuring that safeguards exist for the AI-driven platform. While training itself, certain red flags should be identified that are deemed harmful for a productive learning environment and the regulatory body will make sure that all such red flags are correctly identified and documented and the AI-platform does not generate any.
8. Technology Support Teams  
   Technology Support Teams will be a group of individuals that will address any grievances with the platform. As the platform needs to be active throughout, they will work akin to any support team for an existing real-time online software.
9. Curriculum Designers  
   Curriculum Designers are individuals responsible for ensuring the curriculum is upgraded to reflect AI assistance. They will either create new interactive elements from the existing curriculum or tweak the curriculum in a way that makes it more approachable. This will be needed until the AI model starts providing solutions on its own and once it does, the solutions can be verified by Curriculum Designers.

**Key Drivers:**

Personalization:

* Adaptive learning: Tailoring content and pace to individual student needs, strengths, and weaknesses.
* Microlearning: Delivering bite-sized, relevant content that fits busy schedules and attention spans.
* Skill-based recommendations: Suggesting resources and pathways based on individual learning goals and progress.

Engagement:

* Interactive activities and assessments: Gamification, simulations, and collaborative projects to keep students motivated.
* Real-time feedback and progress tracking: Providing personalized insights and encouraging continuous improvement.
* Diverse content formats: Offering multimedia elements like videos, podcasts, and interactive simulations.

Empowerment of educators:

* Automated tasks and workflows: Freeing up teachers' time for personalized interaction and support.
* Data-driven insights: Providing teachers with actionable data on student performance and learning gaps.
* Collaboration tools: Facilitating communication and resource sharing among educators.

Trustworthiness:

* Data security and privacy: Implementing robust measures to protect student data and comply with regulations.
* Transparency and explainability: Providing clear explanations of how AI algorithms personalize learning.
* Alignment with educational standards: Ensuring content and assessments map to established curriculum guidelines.

Additional drivers:

* Seamless integration: Easily connecting with existing learning platforms and educational ecosystems.
* Cost-effectiveness: Offering affordable access for schools and families.
* Scalability and accessibility: Catering to diverse learning needs and contexts, including remote and underserved areas.

d.) Key Constraints:

1. Budgetary Constraints:

- Explanation: We don't have a lot of money for the project. This means we need to be careful about what features we can include. We have to prioritize and spend our funds wisely to make sure the important things get done.

2. Regulatory Compliance:

- Explanation: We have to follow certain rules about keeping data safe. This is really important. We not only need to make sure we're following the rules at the start, but we also have to keep checking and updating things to stay in line with any new rules that come up.

3. Resistance to Change:

- Explanation: Some people might not like the idea of using a new way of teaching with AI. They're used to the old methods. So, we have to help them see the benefits, teach them how to use the new system, and make sure they feel comfortable with the changes.

4. Technological Infrastructure:

- Explanation: Our new AI system needs to work well with all the different devices and systems that schools are already using. We need to make sure everything fits together smoothly. This might take some testing and planning to get it right.

5. Training and Adoption:

- Explanation: Not everyone might know how to use our AI system right away. We need to make it easy for them to learn. This includes creating simple interfaces and providing training so that teachers and students can use the system without too much trouble.

Certainly, let's expand on each user requirement with additional points:

1. Learning Adaptability:

- Elaboration:

- The system should be versatile enough to accommodate different subjects, not just limited to specific ones.

- It should allow for adjustments based on the pace of individual learners, ensuring that everyone can grasp concepts at their own speed.

- Customization should extend to different types of assessments, recognizing that people showcase their understanding in various ways.

2. Intuitive Interface:

- Elaboration:

- The system should have clear and straightforward navigation so that users don't get lost or frustrated.

- Instructions and prompts should be easy to understand, catering to users with varying levels of technological familiarity.

- Visual elements, such as icons and buttons, should be intuitive, making it easy for both educators and students to find what they need.

3. Continuous Feedback Mechanism:

- Elaboration:

- Feedback should not only focus on performance but also on the learning process, helping users understand their strengths and areas for improvement.

- Regular updates and notifications should keep users informed about new features, improvements, and any changes in the learning environment.

- The feedback system should be a two-way street, allowing users to provide suggestions and insights to enhance the overall learning experience.

4. Accessibility:

- Elaboration:

- Consideration should be given to users with diverse needs, including those with visual, auditory, or motor impairments.

- The system should be designed with inclusivity in mind, ensuring that no group of users faces unnecessary barriers.

- Compatibility with assistive technologies, like screen readers or voice commands, should be a priority to enhance accessibility.

5. Collaboration Features:

- Elaboration:

- Beyond collaborative projects, the system should support group discussions, fostering a sense of community in the virtual learning environment.

- Features for real-time collaboration, such as live editing of documents or joint problem-solving exercises, should be integrated.

- The system should encourage peer-to-peer learning, allowing students to share insights and help each other, creating a supportive learning community.

Certainly, let's delve into more details for each business requirement:

1. Scalability:

- Elaboration:

- The system should be able to grow and handle an increasing number of users, courses, and educational institutions without slowing down or encountering technical issues.

- Scalability should extend to different sizes and types of educational institutions, ensuring that the platform is useful for small schools as well as large universities.

- Flexibility in accommodating future expansion plans, such as adding new features or adapting to emerging educational trends, is crucial for long-term success.

2. Partnership Integration:

- Elaboration:

- The system should seamlessly connect with existing educational tools commonly used in schools, making it easy for educators to incorporate our platform into their teaching methods.

- Integration should not disrupt the workflow of educators, and the platform should complement and enhance the functionalities of other tools, creating a cohesive and efficient educational ecosystem.

- Collaboration with other educational technology providers should be facilitated, fostering a network that benefits the entire education community.

3. Monetization Strategy:

- Elaboration:

- A sustainable plan for development and maintenance should consider various revenue streams, such as subscription models, licensing fees, or partnerships with educational institutions.

- Pricing models should be transparent and fair, ensuring that the platform remains financially viable for both users and the development team.

- The strategy should allow for adaptability, enabling adjustments based on user feedback, market changes, and evolving needs within the education sector.

4. Compliance Management:

- Elaboration:

- Beyond initial compliance, the system should have a proactive approach to staying updated on data security regulations and privacy laws.

- Regular audits and assessments should be conducted to identify and address any potential compliance issues promptly.

- Clear communication with users about how their data is handled and protected is essential for building trust and maintaining a strong reputation regarding compliance.

5. Marketing and Outreach:

- Elaboration:

- A comprehensive strategy for platform promotion should include targeted marketing campaigns that highlight the unique benefits and features of the system.

- Outreach efforts should extend to educational conferences, online forums, and partnerships with educational influencers to increase visibility within the education community.

- Ongoing engagement with users through social media, newsletters, and other communication channels should be part of the strategy to build a strong user community and gather valuable feedback for continuous improvement.

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System Requirements: **Anurag**

1. Interoperability: Compatibility across devices, operating systems, and browsers.

2. AI Algorithm Accuracy: Regular updates for improved personalization accuracy.

3. Real-time Analytics: Tracking user engagement, learning progress, and system performance.

4. Data Migration: Seamless transition plan for institutions adopting the AI platform.

5. Offline Capability: Features for users with limited internet access.

Security Requirements: **Anurag**

1. Data Encryption: End-to-end encryption for comprehensive data protection.

2. Identity Verification: Secure mechanisms for user authentication.

3. Access Control: Strict controls for authorized access.

4. Security Audits: Periodic checks for identifying and addressing vulnerabilities.

5. Data Backup and Recovery: Robust mechanisms to prevent data loss.

Quality Requirements: **Anurag**

1. Performance Optimization: Continuous improvement for a seamless learning experience.

2. Scalability Testing: Regular tests for handling increased user loads.

3. Cross-browser Compatibility: Consistent performance across various web browsers.

4. User Support Services: Prompt and effective support for user issues.

5. Update Frequency: Regular updates for new features, improvements, and security patches.

f.) Requirement Elicitation Process: **Parth**

Our team utilized a combination of surveys, interviews, and workshops with educators, students, and administrators to gather diverse perspectives and needs.

g.) Requirement Validation and Analysis: **Parth**

Requirements were validated through iterative discussions within the team and consultation with external education experts. Analytical tools were employed to ensure feasibility and alignment with project goals.

h.) User Feedback: **PARTH**

1. Siddharth - Roommate: Emphasized the importance of a user-friendly interface.

2. Chetan - Roommate: Highlighted the need for adaptability to various teaching methodologies.

3. Shantanu - Roommate: Stressed the significance of robust data security features.

4. Anmol - Friend: Advocated for scalability and seamless integration with existing systems.

5. Achintya - Friend: Provided insights into compliance management and ethical considerations.