

Important links

1. Proposal
<https://github.com/drshahizan/software-engineering/tree/main/proposal/submission/sec02/Software>
2. Proposal Example
<https://github.com/drshahizan/software-engineering/blob/main/proposal/materials/sample-proposal.md>
3. Proposal Rubric
https://docs.google.com/spreadsheets/d/1Cy_X_OmIN0MI9PNEMSZasIAMD_0nilqz/edit?usp=sharing&oid=116754994049085925053&rtpof=true&sd=true
4. Activity
<https://github.com/drshahizan/software-engineering/blob/main/project/documentation/srs/srs-group.md>
5. Documentation
<https://drive.google.com/drive/folders/1wirG--meSpZ3Qbykf8V2CYOd2Y3FSdC2>
6. http://studentsrepo.um.edu.my/10459/1/Santha_Mary_Vedamanikkam.pdf
7. Github Draw.io for Diagrams
<https://github.com/drshahizan/software-engineering/tree/main/project/drawio/Software>
8. Drive for Use Case draw.io
<https://drive.google.com/file/d/1H7LEEZSafJbU-fv1O4djLBPWKDqTv17X/view?usp=sharing>
9. Senior link:
<https://github.com/drshahizan/software-engineering/blob/main/project/documentation/srs/srs-group.md>

Stakeholder	Name
Administrator	Puan Nazlin
Student	Lim Shi Kai
Emergency unit and Treatment unit	Dr Mhd Firdaus
Dentistry unit	Dr Norannieza bte Muzlan
Mental Health unit	Dr Noor Hafizah Zaihanah bte Mohd Nur

Mobile Application Feature:

1. Dashboard (Announcement) (假期没开或有活动or烟for 蚊症)
 - a. Patient waiting number and time (dashboard)
 - b. Feedback and Review (dashboard or contact us) (navigation 1st from main)
2. User profile (upload without access with PKU database) (navigation 2nd from main)
 - a. Manage profile. (navigation 2-7)
 - b. BMI calculation (key-in)
 - c. Medical checkout result (image)
 - d. Blood Pressure (image/key-in)
 - e. X-ray Result (image)
 - f. Urine test result (image)
 - g. Mental Health Results
3. Mental Health test (DASS) (navigation 3rd from main)
 - a. Appointment (Write Personal Details and Issue faced) (provide with dr gmail) (navigation 2)
 - i. Date and Time choose.
 - ii. Dr can accept appointments, cancel and reschedule appointments.
4. Dentist Appointment (navigation 4th from main) (2 navigation inside)
 - a. Only for Denture, root canal treatment, extraction (minor oral surgery) and mucocoele? Filling, cabutan and cuci gugi cannot make appointment
 - b. Operation hour (walk-in)
 - c. Personal details and choose date and time.
 - d. Dr can accept appointments, cancel and reschedule appointments.
5. Health tips (navigation 5th from main)
 - i. Usage of medicine
 - ii. Statistic dental informa

Mobile Application Low Fidelity

1. Login Page (only utm email) (3)(yy)
2. Home (include patient remain and estimated time and feedback) (navigate to User Profile, Mental Health Test, Dental, Health tips and feedback) (4) (yq)
3. User Profile (include manage profile, bmi calculation, medical checkout result, blood pressure, x-ray, urine and mental health result) (9) (GJL)
4. Mental Health (include self test, counseling information, schedule appointment) (13) (KSX)
5. Dental (include schedule appointment and accept appointment) (16) (YH)
6. Health Tips (17) (yq)

Proposal

2. Executive Summary :

A solution designed to simplify and streamline the process time of PKU for students and administrators.

3. Background :

The Student In and Wellness website is a project aimed at addressing the slow and inconvenient process of seeking medical attention for some university students. With the current walk-in system, students have to physically go to the Pusat Kesehatan University, which can be far for some students, leading to long waiting times and inefficient use of time.

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To improve this process, the proposed website will allow students to pre-book their appointments, which will help to manage their time more efficiently and reduce waiting times. The website will also enable students to have online consultations with medical professionals, which will save them time and provide a safe and convenient way to access medical care.

In addition to the above benefits, the website will also provide valuable health information to students. This information will help to increase students' health awareness and provide them with the tools they need to maintain good health. Overall, the Student Health and Wellness website aims to improve the healthcare experience for university students and promote a healthier campus community.

- a. Process slow and walk in and far for some students.
- b. More efficient if able to pre-booking and can manage more time.
- c. Pre-online consultation and save time
- d. Can give more health information to students and increase health awareness.

4. Objective :

- To promote student health and wellness through easy access to medical resources, health tracking tools, and health tips and advice.

(Example: By the end of the first year of implementation, the proposed system will reduce PKU processing time by 25%, resulting in a 25% reduction in administrative workload.)

- To provide a platform for students to communicate with medical professionals at the PKU facility, receive medical advice, and make appointments for medical services.

- To provide a quick and easy way for students to call for emergency assistance in case of a medical emergency.

- To collect and analyze data on student health trends, allowing PKU to better understand the health needs of the student population and provide targeted interventions.

5. Scope:

The Student Health and Wellness Management System proposed in this project will be limited to the development, implementation, and maintenance of the software application. The scope of the project does not include any hardware or infrastructure upgrades or any changes to existing policies or procedures.

The boundaries of the project will be defined by the following:

- 1.The Student Health and Wellness Management System will be designed to integrate seamlessly with the existing student information system, and the development team will work closely with the system's administrators to ensure compatibility.

- 2.The proposed system will only include features related to student health and wellness, including health tracking, online chat with PKU, SOS, making appointments, and health tips. Any additional features requested by stakeholders will be considered out of scope and require further analysis.

- 3.The system's security and privacy features will be designed to comply with all relevant laws and regulations, including the Health Insurance Portability and Accountability Act (HIPAA) and the General Data Protection Regulation (GDPR).

Overall, the proposed Student Health and Wellness Management System's scope is defined by the project's boundaries, limitations, and constraints, and it will be developed and implemented in a manner that ensures compliance with all relevant laws, regulations, and policies.

6. Software Process Model

7. Budget (6 months development + 6 months maintenance)

- Hardware

- Testing

Contingency
Personnel
Software

8. System Architecture

Presentation Layer:

- i. User interface design (HTML, CSS, JavaScript)
- ii. Content management system (CMS) for managing website content
- iii. Accessibility features to ensure the website is accessible to users with disabilities
- iv. Responsive design for optimal display on various devices and screen sizes

Application Layer:

- v. Web server (e.g. Apache, Nginx)
- vi. Web application framework (e.g. Django, Ruby on Rails)
- vii. Business logic and data processing code
- viii. Integration with external services (e.g. appointment scheduling, health records)

Data Layer:

- ix. Relational database management system (e.g. MySQL, PostgreSQL)
- x. Data schema design and management
- xi. Data access layer (e.g. Object Relational Mapping)

Security Layer:

- xii. SSL/TLS encryption
- xiii. User authentication and authorization mechanisms (e.g. OAuth2, LDAP)
- xiv. Access control and permission management
- xv. Logging and monitoring for detecting and responding to security incidents

9. Risks Assessment

- a. Data breaches: The website may contain sensitive information, such as student health records, which could be targeted by hackers. This could result in the theft of personal information and medical histories, leading to identity theft and other forms of fraud.
- b. Denial of service attacks: A malicious user or group may attempt to overload the website with traffic, causing it to crash or become inaccessible. This could disrupt the availability of critical health services and information.
- c. Malware infections: The website may be infected with malware, which could spread to users' computers and compromise their security. This could result in the theft of personal information or control of the user's device.

- d. Insecure coding practices: If the website is not developed using secure coding practices, vulnerabilities could be introduced into the code that could be exploited by attackers.
- e. Insider threats: Employees or contractors with access to the website's systems may intentionally or accidentally cause security breaches or data leaks.

10. Resources

Staff :

- i. 1 User Experience Designer
- ii. 1 Quality Assurance Tester
- iii. 1 Documentation Specialists
- iv. 1 Main Developer
- v. 1 Requirements Analyst

Equipment

- vi. Servers
- vii. Security and backup

Software

- viii. Web Server
- ix. Data Analytics Tools
- x. Relational Database Management System (RDBMS)

11. Technical Specifications

- a. Platform : Web-based application
- b. Language : PHP (backend), HTML, CSS, and JavaScript (frontend)
- c. Database : MySQL
- d. Software : Bootstrap Studio
- e. Authentication : User authentication and authorization
- f. Security: SSL encryption and data encryption at rest
 - i. Modules: Student registration
 - ii. Health assessment and history
 - iii. Medical record keeping
 - iv. Appointment scheduling
 - v. Prescription and medication management
 - vi. Billing and invoicing
 - vii. Reporting and analytic
- g. Integration: Integration with the university's student information system and electronic health record system
- h. Accessibility: Section 508 compliance
- i. Scalability: Ability to handle large volumes of data and users
- j. Support: 24/7 technical support and maintenance
- k. Deployment: Cloud-based deployment with automatic scaling and redundancy

- I. Compatibility: Cross-browser compatibility with major web browsers.

12. Timeline and Deliverables (Gantt chart)

13. Conclusion

- a. Simplify and streamline PKU processing time for students and administrators.
 - b. Provide easy access to medical resources, health tracking tools, and health tips and advice.
- 3.Enable students to communicate with medical professionals, receive medical advice, and make appointments for medical services.
 - 4.Provide a quick and easy way for students to call for emergency assistance in case of a medical emergency.
 - 5.Collect and analyze data on student health trends, allowing PKU to better understand the health needs of the student population and provide targeted interventions.
 - 6.Ensure compliance with all relevant laws, regulations, and policies, including HIPAA and GDPR, while maintaining a secure and user-friendly platform.

Use Case

Authentication System (3) (OYY)

1. Sign Up
2. Login
3. Forgot Password

Account Management System (3) (GJL)

4. Manage own account
5. Manage all users account
6. Upload Health Information

Patient Queue Management System (2) (YH)

7. Key in
8. View

Health Tips Module (2) (KSX)

9. Upload
10. View

Mental Health Support System (remain) (3) (TYQ)

11. Self test
12. Set up appointment
13. Manage appointment

Dental Health Appointment System (2) (KSX)

14. Set up appointment
15. Manage appointment

Feedback (2) (YH)

16. View Feedback for admin.
17. Give feedback from students and doctors.

Questions during interview session with stakeholder (Administrative Officer)

1. Could you give us an idea about approximately how many students will come to PKU per day?
2. How is PKU currently providing medical care and support for students? What are some of the limitations or gaps in the existing system?
3. What features and capabilities do you think are most important for a Student Health and Wellness Management System to have?
4. What specific goals do you hope to achieve through the implementation of this system?
5. What are the most important considerations when it comes to data privacy and security? How can the system ensure compliance with relevant laws and regulations?
6. What are the timelines and budgets for the project? What are the key milestones that need to be met along the way?
7. Who are the primary users of the system? What are their different roles and needs?
8. Are there any existing systems or technologies that the Student Health and Wellness Management System will need to integrate with, such as electronic health records or student information systems?
9. How will the system be accessed and used by students, PKU officers, and other stakeholders? What are the key user experience considerations?
10. What are the requirements for reporting and analytics? How will data be used to inform decision-making and continuous improvement?
11. How will the system be configured and customized to meet the unique needs and workflows of PKU officers and staff, while also ensuring consistency and standardization?
12. Can you walk us through a typical day in your role and how do you interact with student health and wellness information?
13. Can you describe any specific reports or analytics that you would like to see in the new system to help manage student health and wellness information?
14. Can you provide any examples of user feedback or pain points that you have received about the current system for managing student health and wellness information?

Question for features :

If our system is implemented,

1. How to ensure health announcements can be updated from time to time?
2. Is there any technician in PKU who can help on updating announcements?
3. Are medical checkup results possible for students to legally access in their user profile?
4. For the About Us Page, can we access staff information?

Questions during interview session with stakeholder (Medical Officer)

1. What features and functionalities would be most useful for PKU officers in their day-to-day work, such as scheduling or communication tools?
2. What are the most important health and wellness needs for university students, and how can the Student Health and Wellness Management System support these needs?
3. What are the current challenges and pain points in providing health services and support to students, and how do you think this system can address these issues?
4. How many doctors are there in PKU? Are they medical specialists or general practitioners?
5. How do you currently manage emergency calls?
6. How will the system handle urgent or critical health situations, such as medical emergencies, and what protocols will be in place for escalation and follow-up?
7. How do you currently manage and track medication and treatment histories for patients, and how might this change with the new system?
8. For live chat with PKU feature, how many staff will be responsible for customer service?
9. For health tips feature, who will be the person providing the professional knowledge?
10. What are the privacy and security considerations for storing and managing student health information, and what policies and procedures must be followed to ensure compliance?
11. How can the system be designed to be user-friendly and accessible for both PKU officers and students, regardless of technical proficiency or health literacy?
12. What are the budget and resource constraints for the project, and how can the system be designed and developed in a cost-effective and efficient manner without sacrificing quality or impact?
13. How will PKU officers collaborate with other stakeholders, such as university administrators, academic advisors, or mental health professionals, through the Student Health and Wellness Management System, and what features or functionalities will support this collaboration?
14. How can the Student Health and Wellness Management System be designed to promote student engagement and ownership of their own health and well-being, and what features or functionalities will be necessary to support this?

Questions during interview session with stakeholder (JKM KTDI)

1. What methods and how do you currently manage your health and wellness needs as a KTDI student?
2. As a JKM of KTDI, what are the programs that JKM offered to KTDI students for the purpose of improving their healthcare?
3. As students, what challenges have you experienced in accessing healthcare services on campus?
4. What health and wellness services do you feel are missing or could be improved at UTM especially in KTDI?
5. How do you prefer to receive health and wellness information and resources through this system?
6. What features would you like to see in a health and wellness management system? / what features would be most helpful in a student health and wellness management system?
7. How would you like to be able to interact with healthcare professionals through the system (e.g., online consultation through video meeting or text, appointment scheduling, face-to-face activities information)?
8. What concerns do you have about sharing your health information with PKU or with other students?
9. What types of data privacy and security features would you like to see in the system?
10. Are there any specific guidelines or regulations that need to be considered when developing the website, such as data privacy, security, or accessibility requirements, as per the policies of KTDI?
11. How important is it for you to be able to track your own health and wellness progress through the system? (scale from 1 to 5)
12. What barriers do you see to using a health and wellness management system, and how could those barriers be addressed?
13. How frequently do you think you would use a health and wellness management system?
14. Can you briefly describe how you maintain your healthy lifestyle in university daily life?
15. Can you provide any documentation about healthcare that you receive in university life?
16. Are there any other suggestions, ideas, or concerns that you would like to share regarding the development and implementation of the Student Health and Wellness website at Kolej KTDI?

Questions during interview session with stakeholder (Mental Health)

1. Can you tell me about your experience working with students and their mental health needs such as the workflow of treating them?
2. What are some of the common mental health challenges faced by university students?
3. How do you currently identify the mental health needs of students who come to the PKU?
4. How do you currently gather and document information about students' mental health conditions? Are there any challenges or limitations with the existing process?
5. As part of your evaluation process, do you regularly use the Depression, Anxiety, and Stress Scale (DASS) questionnaire or any other similar assessment tools?
6. For each grade for DASS(Normal, Mild, Moderate, Severe, Extreme Severe), can you briefly describe what they should access to help them in mental health?
7. What are the key benefits of integrating a self-test for DASSscores into the system?
8. Are there any existing resources or materials related to mental health that you think should be incorporated into the system?
9. How do you collaborate with the counseling departments on campus to support the mental health needs of students?
10. In your opinion, what do you think of the key features that a Student Health and Wellness Management System should have in terms of mental health? / Do you have any suggestions or additional features that you believe would enhance the mental health support provided by the system?
11. Are there any specific data or information that you think would be important to track and monitor within the system to improve student health outcomes?
12. How do you ensure privacy and confidentiality when dealing with sensitive student health information, and how could a management system support these requirements?
13. Are there any other suggestions, ideas, or concerns related to mental health and the website that you would like to share during this interview?

Questions during interview session with stakeholder (Dentistry)

1. How do you currently manage the health and wellness records of your patients? Are there any specific challenges you face in organizing and accessing this information?
2. What specific dental services or resources are currently available to students at the university? Are there any limitations or challenges faced by students when accessing dental care?
3. What kind of information do you need to collect from patients when scheduling an appointment?
4. Can you walk me through your current process for scheduling appointments with patients?
5. How do you typically handle appointment cancellations or rescheduling?
6. What are some of the common challenges you face when scheduling and managing appointments for your patients?
7. What features or functionalities would you expect to see in a health and wellness management system that would benefit your dental practice?
8. How do you communicate appointment details and reminders to your patients to ensure that they are informed and arrive on time? Do you use any digital tools or platforms for this purpose?
9. Are there any potential collaborations with external dental practitioners or organizations that could be integrated into the website? How can the website facilitate such partnerships to provide additional dental services for students?
10. Are there any specific regulatory or compliance requirements that you need to adhere to when it comes to managing patient health records?
11. What kind of dental health information and resources would you like to be available on the website to educate and raise awareness among students? Are there any specific topics or areas of focus that you believe would be valuable to include? (health tips)
12. What kind of reporting and analytics capabilities would be beneficial for your dental practice, such as patient statistics, treatment outcomes, or revenue analysis?

!!!Dr cakapp!!!

Perlu ade Struktur Organisasi

Meet with each stakeholder at least 3 times

2nd - Stakeholder can bagi borang, **proses kerja**, dokumentasi (eg.workflow)

Analyze

3rd - Verify

Backend development no need to do

Prioritize Analytic Module yg nak buat(>=5 modules, <=10 modules)

- Registration module
- Apa2 berkenaan pendaftaran
- Apa2 melibatkan proses (eg. proses consultation)
- Module
- Module admin

Responsibility

- X compliance, and provides training and support.
- Explain process flow
- Dr salah seorang pengguna
- Admin check ubat.....(different with Dr)
- Responsibility admin x same with doctor
- Sebagai student kenapa pergi hospital - pesakit yang perlukan perkhidmatan(eg. Demam, ada appointment)
- Tanya pesakit/ history penyakit (kena berkenaan job scope)
- Workflow: Pergi counter->beri kad matrik->key in no.matrik->keluar info pesakit->print nombor->key in number in front bilik->Dr will press the number->Dr tulis sesuatu->bagi ubat(dalam bentuk surat)

Project(Github)- got outcomes, solutions, problem

SD refer

https://github.com/drshahizan/undergraduate-project/blob/main/PSM2/thoriqualhaq/docs/psm-1/report/A19EC0292_ThoriqualhaqJibrilAlQudsy_PSM1Final.pdf Starts from Pg72

- Under Functional Requirements Part - Write FR001...(Refer Pg 96)
- UC001... All use case must have elaboration (Refer Pg97)

- Use Case Diagram, Class Diagram(abadikan dulu), Sequence Diagram, Activity Diagram(somehow like flowchart with actors), (Refer <https://github.com/drshahizan/software-engineering/tree/main/materials/uml> ,4,5,6,7)

Lepas jumpa stakeholder kena dapat document dan lampirkan document itu