FINAL RETAKE 2021



Student should carefully read the Case study of management information system to answer  
questions in the test.  
A Ronald university would like to automate various academic and administrative activities of the  
institute. Users of the campus automation software include students, faculty members,  
administrative staff members, and sometimes the general public who wish to access information  
about the institute.  
The system shall have 4 main sections:  
1. Academic activities management  
2. Administrative activities management  
3. Accounting and Finance management  
4. Facilities management  
You are required to lead this project but only implement 1 section in the first phase. **The Accounting  
and Finance management** should be finished on time and within budget, but it is even more  
important to provide a high-quality service and avoid any potential technical or user problems after  
implementation.  
The team to work on this project has 4 developers, 2 testers. Most of the developers and testers

important to provide a high-quality service and avoid any potential technical or user problems after  
implementation.  
The team to work on this project has 4 developers, 2 testers. **Most of the developers and testers  
has offices on different floors of the building and generally works in their office**. The team  
members **have some experience in mobile development but none in web development**. Nobody on  
team has performance testing experience or User experience expertise. Also, since this is the first  
agile project for the team, they are not familiar with engineering practices like automated testing  
continuous integration, etc.

**The Business stakeholders** who wrote the high level vision for the web application are going to help  
refine or define the user needs. They currently sit in different building. They are working on writing  
detailed requirements and planning to hand-off to you in 2 weeks. At the beginning, a minimal set of  
features/functionalities and a set of non-functional requirements are described as below:  
Student account management  
o Admin manage Fees, Teaching assistantship, Scholarships, Fines and other charges  
Student should be able to view their account and report in case of any discrepancy.  
• Employee Accounts Management  
o Salaries: admin should be able to keep the account of employee's salaries every  
month (with componentwise split, income tax deducted etc.) and when it was paid,  
and employees should be able to view the details and report in case of any  
discrepancy.  
o Leave management:  
Employees should be provided with the functionality of placing request for leave

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o Admin manage Fees, Teaching assistantship, Scholarships, Fines and other charges.  
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month (with componentwise split, income tax deducted etc.) and when it was paid,  
and employees should be able to view the details and report in case of any  
discrepancy.  
o Leave management:  
Employees should be provided with the functionality of placing request for leave  
and to check the status (approved/rejected/need to submit supporting documents).  
Leave can be of different types -Earned Leave, Duty Leave, Casual Leave, Medical  
Leave or Loss of Pay. Casual Leave and Duty. Leave can be approved by the Head of  
the Department. Other approvals come from the Registrar.  
o Income Tax management  
Admin should be able to keep the account of these investments that each  
employee makes, income tax relaxations that each employee is entitled to in each  
section and the income tax deductions from salary every month. Employees should  
be able to view the details and report in case of any discrepancy.

o The system should be able to interface with Microsoft Excel-read from Excel and  
write to Excel. Standard file formats such as CSV or XML should also be supported  
for both import and export.

QUESTIONS:

1. Your manager requires you to choose Agile Software Development to apply this project.  
a. Identified the reason for choosing Agile, and the explanation was appropriate. (1p)

There are reasons that why **I choose Agile** methodologies used in software development:

* Flexibility: Designed to be flexible and adaptable to changing requirements and priorities. This allows teams to respond quickly to changes in the business environment or user needs.
* Faster time-to-market: Prioritize delivering working software in short iterations, which allows teams to get feedback from stakeholders and adjust quickly. This can help reduce time-to-market and ensure that the product meets user needs.
* Improved collaboration and communication: Emphasize collaboration among team members and with stakeholders. Regular stand-up meetings, sprint reviews, and retrospectives provide opportunities for team members to communicate and work together effectively.
* Continuous improvement: Emphasize continuous improvement, with regular retrospectives and feedback loops that help teams identify areas for improvement and implement changes.
* Increased quality: Prioritize quality through practices such as automated testing, continuous integration, and continuous delivery. This can help ensure that the software is of high quality and meets user needs.
* Customer satisfaction: Focus on delivering software that meets customer needs, through regular feedback and collaboration. This can help ensure that the final product is aligned with customer expectations and leads to higher customer satisfaction.
* **Overall,** Agile methodologies can help development teams work more efficiently, collaborate effectively, and deliver high-quality software that meets user needs.

Types and number of requirements?

Based on the provided case study, the following are the types and number of requirements:

**Functional Requirements:**

a. Student account management

i. Admin manage Fees, Teaching assistantship, Scholarships, Fines, and other charges.

ii. Students should be able to view their account and report in case of any discrepancy.

b. Employee Accounts Management

i. Salaries: admin should be able to keep the account of employee's salaries every month (with componentwise split, income tax deducted, etc.) and when it was paid, and employees should be able to view the details and report in case of any discrepancy.

ii. Leave management: Employees should be provided with the functionality of placing a request for leave and to check the status (approved/rejected/need to submit supporting documents). Leave can be of different types -Earned Leave, Duty Leave, Casual Leave, Medical Leave or Loss of Pay. Casual Leave and Duty. Leave can be approved by the Head of the Department. Other approvals come from the Registrar.

iii. Income Tax management: Admin should be able to keep the account of these investments that each employee makes, income tax relaxations that each employee is entitled to in each section and the income tax deductions from salary every month. Employees should be able to view the details and report in case of any discrepancy.

**Non-Functional Requirements:**

a. The system should be able to interface with Microsoft Excel-read from Excel and write to Excel. Standard file formats such as CSV or XML should also be supported for both import and export.

**Therefore, there are 6 requirements in total, consisting of 3 functional and 1 non-functional requirement for each section.**

b. Are there any project constraints laid out in the case study that needs to be  
changed/managed since you will be using Agile regarding planning, estimation, and  
tracking happens differently? (1p)

Without knowing the specific case study and its constraints, it is difficult to provide a definitive answer. However, in general, Agile project management often involves a more flexible and adaptive approach to planning, estimation, and tracking than traditional project management methodologies.

Some potential areas where the use of Agile might require changes to project constraints could include:

* **Project timelines**: Agile projects typically involve shorter development cycles or sprints, which can result in a faster time-to-market. However, this may require adjusting the overall project timeline or delivery dates to accommodate the iterative nature of Agile development.
* **Scope and requirements**: Agile development often involves frequent changes to project scope and requirements based on user feedback and evolving priorities. This may require more flexibility in project scope and requirements than traditional project management methodologies.
* **Resource allocation**: Agile development requires a highly collaborative and cross-functional team approach, which may require rethinking how resources are allocated and how team members work together.
* **Budgeting**: Agile projects typically involve a more incremental and iterative approach to development, which can make budgeting and cost estimation more challenging. This may require more frequent budget reviews and adjustments throughout the project lifecycle.

**Overall**, the use of Agile project management can require adjustments to traditional project constraints in order to effectively manage and deliver the project. However, these changes can also lead to greater flexibility, agility, and ultimately a more successful project outcome.

2. List out 6 functional requirements and 2 non-functionals requirements. (2p)

Functional Requirements:

* Admin should be able to manage student account, including fees, teaching assistantship, scholarships, fines, and other charges.
* Employees should be provided with the functionality of placing request for leave.
* Students should be able to view their account and report any discrepancies.
* Admin should be able to manage employee accounts, including salaries, leave, and income tax.
* Employees should be able to view their salary details and report any discrepancies.
* Employees should be able to place requests for leave, check their status, and report any discrepancies.
* The system should be able to interface with Microsoft Excel and support standard file formats such as CSV or XML for both import and export.

Non-Functional Requirements:

* The system should provide a high-quality service and avoid any potential technical or user problems after implementation.
* The Accounting and Finance Management section should be finished on time and within budget.

3. Write 4 user stories for employee actor (2p)

* As an employee, I want to be able to view my current salary and pay history, including deductions for income tax and other benefits, so that I can ensure that my pay is accurate and report any discrepancies.
* As an employee, I want to be able to request and track my leave requests, including the ability to provide supporting documents, so that I can manage my time off effectively and ensure that my leave is properly recorded.
* As an employee, I want to be able to view my investment details and tax relaxations, as well as deductions from my salary each month, so that I can understand my tax liabilities and ensure that my financial information is accurate.
* As an employee, I want to be able to import and export data from the system using standard file formats such as CSV or XML, as well as Microsoft Excel, so that I can work with my financial data outside of the system and easily integrate it with other tools and software.

4. Draw a story map (at least 3 levels) for the "Employee Accounts Management" feature  
Students could use the bullet and indentation of Ms. Word to illustrate the story map (2p)

Initialized section

Manage

employee

End section

Generate

employee

**User activity**

Income Tax Management

Employee Accounts Management

Logout to system

Employee Leave Management

Employee Salaries

Login to system

**User tasks**

--------------------------------------------------- Release 1 -----------------------------------------

Logout to system

AD: input investment information and income tax relaxations

Confirm information

Admin: input employee salary

lace requests for different types of leave

Enter user ID, Password

--------------------------------------------------- Release 2 -----------------------------------------

manage the employee accounts, including their salaries, leaves, and income tax.

Logout to system

AD: view and update the income tax deductions

Approve or reject leave requests

Admin: view and update the status

Login by

Company Email

**Features**

--------------------------------------------------- Release 3 -----------------------------------------

their salary details, request for leaves, and check their income tax details.

Employees can view their income tax information and report any discrepancies.

check the status of their leave requests

Fast login by phone

Employees: view their salary information and report any discrepancies.

Logout to system

5. Select two quality attributes that are likely to be important when deciding a website  
architecture for the website: <http://lms-undergrad.fpt.edu.vn/>. You can use usability,  
security, performance, reliability, or any other reasonable quality attribute as the basis of  
your selection. Briefly explain the importance of this quality attribute as it relates to the  
software/service you selected. Then, write the scenario here. (2p)

I choose Usability and Performance to be important when deciding a website architecture because:

Usability: Usability is the degree to which a website is easy to use, learn, and navigate. For an educational website like LMS Undergrad, usability is a critical quality attribute as it can impact the user experience and engagement of students and faculty. A website that is easy to use and navigate can lead to increased student engagement, improved learning outcomes, and higher overall satisfaction with the LMS platform.

Security: Security is the ability to protect data and information on the website from external threats. For an educational website like LMS Undergrad, security is an important attribute because it contains personal and educational information of students and faculty. If the website is not well-protected, this information can be leaked outside and cause serious consequences for the parties involved.

Performance: Performance refers to the speed, latency, and scalability of the website. For a website like LMS Undergrad, performance is an important attribute because it affects the user experience. If the website is slow or unresponsive, users can become frustrated and lose trust in the LMS platform. Additionally, performance also plays an important role in ensuring the website can scale to meet the needs of users in the future.

Scenario:

The LMS Undergrad team is tasked with selecting a new website architecture to improve the overall user experience and functionality of the platform. After considering various quality attributes, the team decides to prioritize usability and performance.

To improve usability, the team decides to redesign the user interface to make it more intuitive and user-friendly. They conduct user testing to identify pain points and make changes to the navigation and layout of the website. They also implement features such as personalized dashboards and notifications to improve user engagement and satisfaction.

To improve performance, the team upgrades the server infrastructure to handle increased traffic and improve response times. They also optimize the website code and implement caching techniques to improve load times and reduce server load. Finally, they implement a monitoring and alert system to proactively identify and address any performance issues that may arise.

As a result of these improvements, LMS Undergrad sees increased user engagement, improved learning outcomes, and higher overall satisfaction with the platform. Additionally, the website is able to handle increased traffic and maintain optimal performance levels, even during peak usage periods.

FINAL FALL 2021

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institute. Users of the campus automation software include students, faculty members,  
administrative staff members, and sometimes the general public who wish to access information  
about the institute.  
The system shall have 4 main sections:  
1. Academic activities management  
2. Administrative activities management  
3. Accounting and Finance management  
4. Facilities management  
You are required to lead this project but only implement 1 section in the first phase. **The Academic  
activities management** should be finished on time and within budget, but it is even more important  
to provide high-quality service and avoid any potential technical or user problems after  
implementation.  
The team to work on this project has 4 developers, 2 testers. **Most of the developers and testers  
have offices on different floors of the building and generally works in their office**. The team  
members have **some experience in web development but none in mobile development**. Nobody on  
the team has performance testing experience or User experience expertise. In addition, they are not  
familiar with engineering practices like automated testing, continuous integration, etc.  
The Business stakeholders who wrote the high-level vision for the web application are going to help  
refine or define the user needs. They currently sit in a different building. They are working on writing  
detailed requirements and planning to hand-off them to you in 2 weeks. In the beginning, a minimal  
set of features/functionalities and a set of non-functional requirements are described as below:  
• Academic Program:  
Enrolling new students: for external users who have not an account of Ronald University, the  
system would provide an online application form that is filled in by the applicant.  
Course registration (enrollment for desired courses): login by registered account and register  
for courses for one semester. The student shall pay the fee courses through a banking  
account. During Course Registration an estimate of 10,000 students should be able to  
register over an interval of 2 days.  
Evaluation and Grading: Lecturer shall be able to import progress marks, the CSV or Excel file format is required. They also give marks directly on the Web form.  
Viewing and printing grade reports: the system should provide the reports for Students/  
Academic departments after they are logged in to the system.  
• Student Information: Student records management.  
• Training and Placement: Displaying schedules of Campus interviews, Putting up shortlists,  
and declaring results.  
Questions:  
1. What software development methodology would you suggest for this situation and why?  
You should explain by the following criteria:  
1. Requirements characteristics (1p)  
- reliability  
- types and number of requirements  
- how often the requirements can change  
- can the requirements be defined at an early stage.

2. Development team: (0.5 p)  
- team size  
- level of understanding of user requirements by the developers

3. User involvement in the project (Small/Average/Large) (0.5p)

2. Despite the software development methodology you have chosen, your manager requires  
you to choose Agile Software Development to apply this project.  
a. Identified the reason for choosing Agile, and the explanation was appropriate. (1p)  
b. Are there any project constraints laid out in the case study that needs to be  
changed/managed since you will be using Agile regarding planning, estimation, and tracking  
happens differently? (1p)

3. List out 2 non-functionals requirements. (1p)

4. Write 2 user stories for student actor (1p)

5. Draw a story map (at least 3 levels) for the "Academic program" feature. Students could use  
the bullet and indentation of Ms. Word to illustrate the story map. (2p)

6. Select two quality attributes that are likely to be important when deciding a website  
architecture for the website: [https://fap.fpt.edu.vn](https://fap.fpt.edu.vn/). You can use usability, security,  
performance, reliability, or any other reasonable quality attribute as the basis of your  
selection. Briefly explain the importance of this quality attribute as it relates to the  
software/service you selected. Then, write the scenario here. (2p)

(NOTE)

BÀI LÀM:

Câu 1:

**Software development methodology:**

* Based on the characteristics of the project, I would suggest using the **Agile** software development methodology.

**Requirements characteristics:**

**Reliability**: The system must provide high-quality service and avoid any potential technical or user problems after implementation.

**Types and number of requirements**:

**(Cách 1 )Types of Requirements:**

**Functional Requirements**: These describe what the system should do to meet the needs of its users. Examples in the case study include enrolling new students, course registration, evaluation and grading, and student records management.

**Non-functional Requirements**: These describe how the system should perform, including its reliability, performance, usability, and security. Examples in the case study include the requirement for the system to handle 10,000 students registering for courses over 2 days and the need for high-quality service and avoiding technical or user problems after implementation.

**Number of Requirements:**

The case study provides a list of high-level functionalities for the Academic Program section that includes the following specific requirements:

* Enrolling new students
* Course registration
* Evaluation and grading
* Viewing and printing grade reports
* Student records management

(Cách 2):

* 3 **Types Requirements and 10 requirements**

**Functional requirements:** these are requirements that describe what the system should do in terms of its functions or features. -Examples of functional requirements in this case include:

Provide an online application form for new students to enroll in Ronald University

Allow registered students to log in and register for courses for one semester

Enable lecturers to import progress marks in CSV or Excel format

Provide grade reports for students and academic departments

**Non-functional requirements**: these are requirements that describe how the system should perform, rather than what it should do.

-Examples of non-functional requirements in this case include:

The system should be able to handle 10,000 students registering for courses over a 2-day interval without any technical or user problems

The system should be secure and protect the confidentiality of student information

The system should be user-friendly and easy to navigate

**Technical requirements:** these are requirements that describe the underlying technologies and infrastructure that the system must use.

- Examples of technical requirements in this case include:

The system must be developed using web technologies

The system must be able to integrate with banking systems for fee payments

The system must be able to import progress marks in CSV or Excel format

**How often the requirements can change**: The requirements are not fully defined yet and will be refined in the coming weeks.

**Can the requirements be defined at an early stage**: Yes, the high-level vision for the web application has been defined by the business stakeholders.

**Development team:**

Team size: The team consists of 4 developers and 2 testers.

**Level of understanding of user requirements by the developers:** The developers have not received detailed requirements yet, but the business stakeholders will help refine or define the user needs.

**User involvement in the project**:

Cách 1:

Small/Average/Large: It is not clear from the case study, but the users of the system include students, faculty members, administrative staff members, and sometimes the public who wish to access information about the institute.

Cách 2:

Large because the users of the system include students, faculty members, administrative staff members, and sometimes the public who wish to access information about the institute.

(Lớn vì người dùng hệ thống bao gồm sinh viên, giảng viên, nhân viên hành chính và đôi khi là công chúng muốn truy cập thông tin về viện.)

Cách 3:

Large because users are participants in the product experience, they can make suggestions for the product to improve according to user needs, so we can conclude that user participation in this project is large.

(Bởi vì người dùng dự án là người tham gia trải nghiệm sản phẩm, họ có thể đưa ra đề xuất để sản phẩm cải thiện theo nhu cầu của người dùng, vì vậy chúng tôi có thể kết luận rằng sự tham gia của người dùng trong dự án này là lớn.)

Câu 2:

**Agile Software Development:**

* **Reason for choosing Agile**: Agile methodology is a good fit for this project because it allows for flexibility in responding to changes in requirements and encourages continuous improvement through frequent feedback and collaboration. It also supports the development team's lack of experience in certain areas, such as automated testing and user experience expertise.
* **Project constraints**: With Agile, planning, estimation, and tracking happens differently than in traditional software development. The team will need to adjust to using iterative development, frequent communication and collaboration with stakeholders, and continuous integration and delivery.

Câu 3:

**Non-functional requirements:**

* Performance: The system should be able to handle 10,000 students registering for courses over a 2-day interval.
* Security: The system must protect student and faculty information and prevent unauthorized access.

Câu 4:

**User stories for the student actor:**

* As a student, I want to be able to apply online to enroll in Ronald University, so that I can begin my studies.
* As a student, I want to be able to register for courses online and pay the fees through a banking account, so that I can manage my academic schedule and payments efficiently.

Câu 5:

Initialized section

Manage

student

End section

Generate

student

**User activity**

Training and Placement

Student Accounts Management

Logout to system

Evaluation and Grading

Course registration

Login to system

**User tasks**

--------------------------------------------------- Release 1 -----------------------------------------

view the schedules of campus interviews.

Lecturer imports progress marks from CSV or Excel file

Logout to system

Confirm information

View available courses for one semester.

Enter user ID, Password

--------------------------------------------------- Release 2 -----------------------------------------

apply for job openings and submit their resume and cover letter.

view their progress marks in real-time

Logout to system

Select desired courses and add them to the cart

Modify all information

Login by

Company Email

**Features**

--------------------------------------------------- Release 3 -----------------------------------------

Results of campus interviews are declared on the system and report any discrepancies.

Grade reports are generated automatically after grades are submitted

Logout to system

Confirm the courses and pay through a banking account.

Fast login by phone

Modify confirm approval.

Câu 6:

I choose Security and Performance to be important when deciding a website architecture because:

Security: Security is the ability to protect data and information on the website from external threats. For a website that contains sensitive information like student records and financial transactions, security is crucial. A breach in security can lead to loss of important data, identity theft, and financial fraud, causing serious harm to both the institution and its stakeholders.

Performance: Performance refers to the speed, latency, and scalability of the website. For a website that is used by a large number of students, faculty, and staff, performance is important. Slow loading times, lag, and unresponsiveness can lead to frustration and disengagement from users. Additionally, the website must be able to handle the traffic generated by a large number of users simultaneously.

Scenario:

At FPT University, the Faculty of Accounting and Finance (FAF) website (https://fap.fpt.edu.vn) provides information about courses, events, resources, and student records. With an increasing number of students and faculty members accessing the website, FAF has identified security and performance as key quality attributes for the website.

To ensure security, the website is protected by firewalls, intrusion detection systems, and encryption protocols. User authentication and authorization are enforced with strong passwords and multi-factor authentication. Regular security audits and vulnerability scans are performed to identify and address any potential security threats.

To enhance performance, the website is hosted on a high-speed server with redundant backups and a content delivery network. The website is optimized for fast loading times and minimal latency. Load testing and capacity planning are performed regularly to ensure that the website can handle peak traffic during high-usage periods.

Overall, by prioritizing security and performance, FAF has ensured that its website provides a safe and reliable platform for students, faculty, and staff to access and manage important academic and financial information.

FINAL FALL 2022

**Students should read carefully the following situation:**

We still need to schedule appointments with people to fix issues that pertain to our everyday lives,  
such as pest management, mechanical, electrical, and thermal problems, as well as plumbing-related  
issues. To make an appointment with a service provider, we must call him or arrange a personal  
meeting. However, many issues can arise, such as the service provider being overwhelmed  
elsewhere or being absent from his office when we visit, or the service provider demanding high fees  
to fix the issue, which makes it unlikely that we will be able to make an appointment with the  
provider at the desired time.

To overcome these problems, a start-up company would like to develop a mobile application and  
website that users can acquire to solve problems. For the first time, some features for the admin  
dashboard are defined below:

**Comprehensive Management**: This provides business owners with a front view so they  
can control and monitor all parts of their home services from a single dashboard.  
**Promotion Management**: Promotions in the form of ongoing discounts and deals are  
necessary for a marketing effort to be successful. You may create substantial discounts and  
bargains on the on-demand services market, which raises brand awareness.  
**Listing Management**: It enables the company administrator to maintain control over the  
service pr &oviders and listings on their home services app. They provide a wide range of  
options for adding services, suppliers, pricing, taxes, and other factors.  
**Analytics**: Administrators can know about the most popular services, newly enrolled  
consumers, and orders that have been fulfilled.  
**Manage Discount & Promotions**: To attract and keep clients, business owners can  
develop a variety of discounts, promo codes, and other offers. To increase their ROI, you can  
execute as many marketing campaigns.

Questions:

1. What software development methodology would you suggest for this situation? (3 points)

- identifying the characteristics of this situation and specifying the logic behind the  
selection of characteristics

- Select a model that best fits the characteristics you identified above

- xác định các đặc điểm của tình huống này và xác định logic đằng sau lựa chọn các đặc điểm - Chọn một mô hình phù hợp nhất với các đặc điểm bạn đã xác định ở trên

2. List out 4 functional requirements in which you are interested in this web app. (1.5 points).

3. Write 2 user stories based on your answers in question 2. (1 point)

4. For the dashboard of admin, create a story map to show the user experience and what you  
need to build. Feel free to add fictitious functionality and features as you feel appropriate. You  
will be graded on the quality, completeness, and correctness of your story map. (2 points).

5. Despite the software development methodology you have chosen, your teammates argue with  
you and they would like to choose the SPIRAL methodology to apply to this project.  
a. Should you agree with this requirement or not? If NO, please give the appropriate  
explanation for the WHY question. If YES, give your proposed ideas to require end  
users and another team that could assist you in choosing the SPIRAL methodology to  
develop this website. (1.5 points)  
b. What kind of testing would you suggest the team do? (1 point).

ANSWERS

Cách 0 (GPT):

Q1: What software development methodology would you suggest for this situation and why?

Based on the given situation, the Agile methodology would be the most appropriate. The Agile methodology would be the best approach because the app requires continuous testing and feedback from customers to ensure that it meets their needs. Furthermore, the Agile methodology allows the team to break down the project into smaller iterations and prioritize the requirements as per customer needs.

Q2:

List out 4 **functional requirements** in which you are interested in this web app.

* Service Provider Management: Enables the admin to maintain the control of the service providers and their listings.
* Appointment Scheduling: Allows users to schedule appointments with service providers.
* Payment Integration: Allows users to pay for the services through various payment methods.
* Review and Rating System: Enables users to rate and review service providers.

Q2:

Write 2 user stories based on your answers in question 2.

* Story 1 - As a user, I want to be able to schedule appointments with service providers, so I can book a convenient time slot for their service.
* Story 2 - As an admin, I want to be able to view and manage the service provider listings, so I can maintain control over the services that are being offered.

Q3:

* For the dashboard of admin, create a story map to show the user experience and what you need to build.
* Cách 1:
  + Comprehensive Management

Dashboard view

Service provider management

Listing management

* Promotion Management

Ongoing discounts and deals

Marketing campaigns

* Analytics

Popular services

Newly enrolled consumers

Fulfilled orders

* Manage Discount & Promotions

Discounts

Promo codes

Cách 2:

**Comprehensive Management**

Dashboard Overview

Service Providers Management

Services Management

Listings Management

**Promotion Management**

Discount Management

Promo Code Management

Campaign Management

**Analytics**

Service Provider Performance

Service Performance

User Performance

**Reports**

Service Provider Reports

Service Reports

User Reports

**Settings**

App Settings

Payment Settings

Email and Notifications Settings

5a. Should you agree with this requirement or not?

It depends on the specific situation and team experience. If the team is comfortable with the SPIRAL methodology, then they can agree to use it for the project. However, if the team is not familiar with this methodology, it may be better to stick to the Agile methodology. (nói tại sao dùng Agile)

5b. What kind of testing would you suggest the team do?

The team should conduct a combination of manual and automated testing to ensure that the app functions as expected. They can use various testing techniques such as functional testing, regression testing, and usability testing to ensure that the app is meeting the user requirements. Additionally, the team should conduct security testing to identify and fix any potential security vulnerabilities.

Cách 1(KEY)

Question 1:

**Requirements characteristic:**

Reliability: the requirements are clear but not detailed.

How often the requirements can change: can be changed often according to the market requirements.

Type of requirements:

Functional requirements:

- Quick booking

- Instant notifications

- Rating and Review

- Payment management

Non-functional requirements:

- Easy browsing

Number of requirements is average.

Can the requirements be defined at an early stage: it can be defined by 4 main sections.

This project is a newly build website application.

**Development team:**

Team size: 6-7 people, and 7 members in project will be the magical sweet spot.

**User involvement in the project:**

Since the client (start-up company) wants to develop a new mobile application and website but is unsure how to do so, they will collaborate with the development team to alter requirements after each phase or print.

**Specify the logic: In this situation,** the topic given that a start-up company wants to develop a mobile application and website so that users can fix issues that pertain to their everyday lives, such as pest management, mechanical, electrical, and thermal problems, etc. So, this mobile application and website should include front-end, back-end, and also a database to store user’s data such as SQL server, Firebase, MongoDB.

- Back-end: this mobile application and website will include 2 rights including:

+ Role Admin (manager): delete or ban user, add or remove features if necessary.

+ Role user (customers): will include some functions in the first update:

- Quick booking

- Instant notifications

- Rating and Review

- Payment management

**According to the situation**, it’s best to implement the Agile mindset (especially Scrum) to build the software, all phases of project (analysis, design, development, and testing, enhancement) will be iterative after each sprint/phase after meetings with customer (start-up business).

(Trong tình huống này, chủ đề đưa ra là một công ty mới thành lập muốn phát triển một ứng dụng và trang web dành cho thiết bị di động để người dùng có thể khắc phục các sự cố liên quan đến cuộc sống hàng ngày của họ, chẳng hạn như quản lý dịch hại, các vấn đề về cơ, điện và nhiệt, v.v. , ứng dụng di động và trang web này phải bao gồm giao diện người dùng, back-end và cả cơ sở dữ liệu để lưu trữ dữ liệu của người dùng như máy chủ SQL, Firebase, MongoDB.

- Back-end: ứng dụng di động và website này sẽ bao gồm 2 quyền bao gồm:

+ Vai trò Admin (người quản lý): xóa hoặc cấm user, thêm bớt tính năng nếu cần.

+ Vai trò người dùng (khách hàng): sẽ bổ sung một số chức năng trong lần cập nhật đầu tiên:

- Đặt phòng nhanh

- Thông báo tức thì

- Xếp hạng và Đánh giá

- Quản lý thanh toán

Tùy theo tình hình, tốt nhất là triển khai tư duy Agile (đặc biệt là Scrum) để xây dựng phần mềm, tất cả các giai đoạn của dự án (phân tích, thiết kế, phát triển và thử nghiệm, nâng cao) sẽ được lặp đi lặp lại sau mỗi lần chạy nước rút/giai đoạn sau khi họp với khách hàng ( bắt đầu kinh doanh).)

Question 2:

4 functional requirements in which I am interested in this app:

- Booking services online quickly

- Instant notifications

- Rating and Review

- Payment management

Question 3:

- As a customer, I want to book services online quickly, so that I don’t have to waste my time go to the office of service providers.

- As a customer, I want to rate and review service provider, so that I can determine which service provider will be best suited to address my problems.

Question 4:

Diagram

Description automatically generated

Question 5:

a. I agree with this requirement. Firstly, we must build a mobile application and website from beginning. Since the client (start-up company) wants to develop a new mobile application and website but is unsure how to do so, they will collaborate with the development team to alter requirements after each phase or print. Since incremental methodology also use Agile mindset as its development, so we can specify as below:

**Requirements characteristic:**

Reliability: the requirements are clear but not detailed.

How often the requirements can change: can be changed often according to the market requirements.

Type of requirements:

Functional requirements:

- Quick booking

- Instant notifications

- Rating and Review

- Payment management

Non-functional requirements:

- Easy browsing

Number of requirements is average.

Can the requirements be defined at an early stage: it can be defined by 4 main sections.

This project is a newly build website application.

**Development team:**

Team size: 6-7 people, and 7 members in project will be the magical sweet spot.

**User involvement in the project:**

Since the client (start-up company) wants to develop a new mobile application and website but is unsure how to do so, they will collaborate with the development team to alter requirements after each phase or print.

**Specify the logic: In this situation,** the topic given that a start-up company wants to develop a mobile application and website so that users can fix issues that pertain to their everyday lives, such as pest management, mechanical, electrical, and thermal problems, etc. So, this mobile application and website should include front-end, back-end, and also a database to store user’s data such as SQL server, Firebase, MongoDB.

- Back-end: this mobile application and website will include 2 rights including:

+ Role Admin (manager): delete or ban user, add or remove features if necessary.

+ Role user (customers): will include some functions in the first update:

- Quick booking

- Instant notifications

- Rating and Review

- Payment management

b. Kind of testing I would suggest the team do:

- Functional testing: test functional if it appropriate or not.

- Non-functional testing: Is mobile application and website fast, color acceptable, easy to browse or not.

- Unit testing: test class, method in code, is it running right or wrong.

- Integration testing.

- System testing.

- Release testing.

- User acceptance testing.

FINAL RETAKE SP22 7h30

**Student should read carefully this situation:**Not only in manufacturing, but also in customer service, the car industry and its supporting  
industries are continually altering and reinventing itself. Automobile dealerships, mechanics, and  
driving instructors have all benefited from the trend to digitisation. GarageOne has many car  
services with several offices in the city center. Because GarageOne in the automotive business must  
keep up with developments and invest in digital products to stay current. Therefore, the manager of  
GarageOne decides to adapt a software for automotive service businesses.  
Currently, GarageOne has no system to manage car services, brands, workers at brands, customers,  
etc... All of information is processed and stored in Ms Excel. The main business objectives of  
GarageOne are making the intelligent Business Analytics Dashboard to understand the business  
performance and intergrating marketing solutions. For these reasons, the manager of GarageOne  
decides to adopt a Web application for manager and marketing department. Several features also  
are defined at the first stage as below:  
✔ Intuitive report and business analytics.  
Smart finance and tax manager.  
Individual outlet-wise performance reports.  
Measure output efficiency of each service technician.  
Comprehensive inventory prices and reports.  
Web application is used for manager wherein he/she could view a list of best seller services,  
including the number of customers used, the receipts. The manager could check the technical  
workers with the total of tasks that he done, the number of in charged services. At the dashboard,  
the manager could view the statistics of services by type, by day, by week, by month. The manager  
also update the price of services, type of services, and components/accessories. The Web  
application could run on Google chrome, Firefox, Sarafi and any devices (mobile phone, tablet, PC,  
laptop).  
As a software development professional, you will run into all kind of projects and situations within  
those projects with 3 developers and 1 tester. The manager could assist you in elicitate some missing  
requirements in the early stage. Please answer the following questions:  
1. What software development methodology would you suggest for this situation and why?  
(3 points)  
- identifying the characteristics of this situation and specify the logic behind the selection  
of characteristics  
Select a model that best fits the characteristics you identified above.  
2. List out 4 functional requirements of manager and 2 non-functional requirements of system.  
(1.5 points)  
3. Write 2 user stories of manager. (1 point)  
4. For the web app, create a story map to show the user experience and what you need to build.  
Feel free to add fictitious functionality and features as you feel appropriate. You will be graded  
on the quality, completeness, and correctness of your story map.(2 points).

5.Despite the software development methodology you have chosen, your manager requires you to  
choose Waterfall Software Development to apply this project.  
a. Should you agree with this require or not? If NO, please give the appropriate  
explanation for WHY question. If YES, give your propose ideas to require end users  
and other team that could assist you choosing Agile to develop this application. (1.5  
points).  
b. What kind of testing would you suggest the team to do? (1 point)

Giải:

Q1:

For this situation, I would suggest using an Agile software development methodology, such as Scrum. This is because the project requirements are still evolving and can be refined through close collaboration with the stakeholders, and the team size is relatively small. Additionally, Agile methodologies prioritize delivering a working software incrementally and iteratively, which is aligned with the main objective of GarageOne to have a functional Web application as soon as possible.

Q2:

**Functional requirements:**

* The manager should be able to view a list of best-selling services, including the number of customers, receipts, and time period.
* The manager should be able to check the performance of individual technical workers, including the total number of tasks completed and the number of in-charge services.
* The manager should be able to view comprehensive inventory prices and reports, including information about available stock, sold items, and suppliers.
* The manager should be able to update the price of services, types of services, and components/accessories.

**Non-functional requirements:**

* The Web application should be responsive and work seamlessly on different devices and browsers.
* The Web application should be secure and protect user data from unauthorized access or modification.

Q3:

**User stories of manager:**

* As a manager, I want to be able to view the statistics of services by type, by day, by week, and by month, so that I can make informed decisions about the business performance and areas that require improvement.
* As a manager, I want to be able to measure the output efficiency of each service technician, so that I can identify high-performing employees and reward them accordingly, and also provide additional training and support to those who need it.

Q5:

A: I would not agree with the manager's request to use the Waterfall software development methodology. Waterfall is a more rigid and sequential approach that may not be well-suited for this project, given the need for flexibility and collaboration with stakeholders. To convince the manager to use Agile, I would emphasize the benefits of continuous feedback and collaboration, as well as the ability to adapt to changing requirements. I would also suggest involving end users and other team members in the decision-making process, to ensure that everyone is on board with the chosen methodology.

B: Given the importance of security and data handling in this system, I would suggest conducting thorough testing of the system's security measures, as well as its ability to handle large amounts of data and perform complex data analysis. This could include penetration testing, load testing, and stress testing, among other types of testing. Additionally, functional testing would be necessary to ensure that the system meets the requirements of the manager and other stakeholders.

FINAL RETAKE SP22 9h30

Student should read carefully this situation:

Not only in manufacturing, but also in customer service, the car industry and its supporting  
industries are continually altering and reinventing itself. Automobile dealerships, mechanics, and  
driving instructors have all benefited from the trend to digitisation. GarageOne has many car  
services with several offices in the city center. Because GarageOne in the automotive business must keep up with developments and invest in digital products to stay current. Therefore, the manager of GarageOne decides to adapt a software for automotive service businesses.  
Currently, GarageOne has no system to manage car services, brands, workers at brands, customers,etc... All of information is processed and stored in Ms Excel.  
GarageOne focuses on automated communication with their customers in which a simple  
application is used to interact and inform their customers. Several features also are defined at the  
first stage as below:  
•Automatic interaction via SMS, Email, WhatsApp, Zalo.  
• Send a personalized digital invoice with their branding.  
• Send live service updates.  
• Send automatic vehicle service reminders.  
• Send automatic service feedback and auto-post them on all Google listings.  
• Get bookings from customer Android & iOS app.  
Mobile application is used for customer wherein they could view list of services, including type of  
services, price, description, accessories, etc.. Customer could choose many services to book  
combining with date, type of car and required workers. Customer also interacts with consultants to get further information through SMS, WhatsApp, Zalo, Email. To confirm the booking, customer  
should pay 10% of the total of temporary invoice. Customer could interact with consultants  
whenever and wherever.  
As a software development professional, you will run into all kind of projects and situations within  
those projects with 3 developers and 1 tester. The manager could assist you in elicit ate some missing requirements in the early stage.

**Questions:**

1. What software development methodology would you suggest for this situation and why?  
(3 points)  
- identifying the characteristics of this situation and specify the logic behind the selection  
of characteristics  
Select a model that best fits the characteristics you identified above.  
2. List out 4 functional requirements system handler and 2 non-functional requirements of system.  
(1.5 points)  
3. Write 2 user stories of customer. (1 point)  
4. For the mobile app, create a story map to show the user experience and what you need to  
build. Feel free to add fictitious functionality and features as you feel appropriate. You will be  
graded on the quality, completeness, and correctness of your story map. (2 points).  
5. Despite the software development methodology, you have chosen your manager requires you to choose Agile Software Development to apply this project.  
a. Should you agree with this require or not? If NO, please give the appropriate  
explanation for WHY question. If YES, give your proposed ideas to require end users  
and other team that could assist you choosing Agile to develop this application. (1.5  
points).  
b. What kind of testing would you suggest the team to do? (1 point)

Câu 1:

Based on the given situation, I would suggest the Agile software development methodology. This is because Agile methodology is ideal for projects that involve continuous feedback and iterative development, which is important for a project like GarageOne that requires constant updates and improvements to stay current with the rapidly changing automotive industry. Additionally, Agile methodology allows for flexible and adaptive planning, which is necessary in a project with many unknowns and changing requirements. Furthermore, Agile methodology emphasizes collaboration and communication, which is crucial in a project with multiple stakeholders, such as GarageOne.

Câu 2:

**Four functional requirements of the system could be:**

* Ability to manage car services, brands, workers at brands, and customers.
* Automatic interaction via SMS, email, WhatsApp, and Zalo.
* Live service updates for customers.
* Booking system for customers through an Android and iOS app.

**Two non-functional requirements of the system could be:**

* **Security**: The system must have proper measures in place to ensure the safety and privacy of customer data and financial information.
* **Performance**: The system must be able to handle high traffic and load during peak hours and should be fast and responsive to customer requests.

Câu 3:

**Two user stories of customer could be:**

* As a customer, I want to be able to view a list of available car services, including their descriptions and prices, so that I can make an informed decision and choose the service that fits my needs and budget.
* As a customer, I want to be able to book multiple car services for a single appointment, select the type of car I have, and choose the workers I want to perform the service, so that I can customize my appointment and ensure that I receive the best possible service.

Q4:

Q5:

a. Yes, I would agree with the manager's requirement to apply Agile Software Development to this project. Agile methodology is a good fit for this project as it involves frequent communication with stakeholders and the ability to quickly adapt to changing requirements, which is essential in a project that requires continuous interaction with customers.

To require end-users and the team to use Agile, I would propose the following ideas:

* Conduct a training session on Agile principles, values, and practices to ensure everyone on the team has a shared understanding of Agile.
* Involve end-users in the development process by conducting regular user feedback sessions to gather feedback and ensure that the team is building features that meet their needs.
* Hold daily stand-up meetings to keep everyone on the same page, identify roadblocks, and ensure that the team is working towards the same goals.

🡪Use Agile tools such as user stories, sprint planning, and retrospectives to ensure that the team stays focused on delivering high-quality features that meet end-user needs.

b.

Since testing is an essential part of Agile software development, I would suggest the team implement the following types of testing:

-Unit testing: to ensure that each individual piece of code works as expected.

-Integration testing: to test how different components of the system work together.

-Acceptance testing: to ensure that the system meets the end-user's requirements and can be used in the intended way.

-Regression testing: to ensure that changes to the system have not caused any unintended side-effects or bugs in existing functionality.

🡪 In addition to these types of testing, I would also suggest using test automation tools to ensure that testing can be performed quickly and reliably during each iteration. This will help the team to deliver high-quality features faster and with fewer defects.

RETAKE TE SU 2021

Student should carefully read the context of "An Online Booking Tool" to  
answer questions in the test.  
An Online Booking Tool (OBT) will offer companies the opportunity to book business  
trips efficiently and manage all associated processes. This solution allows companies to  
organize, manage and map the entire business travel process in a transparent manner.  
OBT provides companies with straightforward business travel management software  
and supports ones in optimizing processes and travel costs.  
The key features of the system are:  
Travel planning: In travel planning, among other things, corporate rates and other  
rules defined via the rules definition are taken into account. Here it is not necessarily  
about finding the least expensive option but determining the best individual connection.  
The search results are based on personal preferences and specific company policies. If  
the trip requires approval, then the designated approver will be asked to give their  
confirmation.  
Travel booking: Specified data is checked in the background when booking a trip. The  
system independently prompts the user to complete their profile if certain data is  
missing. Automatically defined remarks are entered in the booking, frequent-flyer cards  
are actively displayed and included, and seats are reserved. Ticketing can also be  
carried out via the system or alternatively via the existing workflow of a ticketing  
queue. Automatic background processes are defined with the travel agency in relation  
to waitlisting or other possible service options. To conclude this stage of the process,  
the traveling party receives a booking confirmation and a corresponding calendar entry  
containing the most important travel information.

Pre-trip/on-trip: The traveling party may receive additional information about their  
trip if required. Furthermore, changes can be made at any time. The latest exchange  
and refund methods have also been integrated and ancillary services have been added.  
Travel expenses: Booking details about the business trip can be transferred directly  
via the import and export function or indirectly via the corporate card provider to the  
preferred travel expense report system. All data is transferred during the trip and  
duplicate entries are removed.  
Report: Comprehensive reporting functions, including predefined standard reports,  
support the responsible travel manager in analyzing and optimizing the business travel  
process.  
There are 2 types of users that may make use of the OBT system:  
Pre-trip/on-trip: The traveling party may receive additional information about their  
trip if required. Furthermore, changes can be made at any time. The latest exchange  
and refund methods have also been integrated and ancillary services have been added.  
Travel expenses: Booking details about the business trip can be transferred directly  
via the import and export function or indirectly via the corporate card provider to the  
preferred travel expense report system. All data is transferred during the trip and  
duplicate entries are removed.  
Report: Comprehensive reporting functions, including predefined standard reports,  
support the responsible travel manager in analyzing and optimizing the business travel  
process.  
There are 2 types of users that may make use of the OBT system:  
1. The managers: manager interact directly with the system, organize plan and  
modify the information of the trip. They are particularly concerned with assigning  
employees who take part in the trip (for business or for holiday travel), the  
duration, route, departure, and destination. The manager also view the cost  
calculation of the trips as well as the number of employees in charge, the  
number of locations that the trip go over  
2. The employees: employees could give a request for absence in the trip that he or  
she is assigned. They have received the notification for the next trip 3 days in  
advance. If they take part in the trip, they also view the calculation of cost in the  
trip, the route they go on, and the detail every day including meeting time,  
meeting location, the hotel they will check-in,.....  
3. The Administrative department: booking the trip basing on the plan, including  
airplane tickets, hotel, meeting room, and all of the services concerning the trip.  
They also cancel the booking in some urgent situations such as the weather, the  
decline from partners. They also in charge of the payment process of these  
bookings.  
The business travel process will execute automatically through the procedures definition  
in company. Real-time reporting plus profile and rights management ensure that  
manager can control the costs and travel policies at all times.

To start with, the team working on this project consists of 4 developers, 2 QAS, and a  
Team Leader. The development team will be supported from the company to  
understand the terms of this business but rarely."

QUESTIONS:

1. List out 6 functional requirements (Aministrative department: 2; Managers: 4)  
and 2 non-functional requirements of the system. (2 points)  
2. Write 2 user stories for the Employees  
(Ex: As a [customer], I want [shopping cart feature] so that [I can easily  
purchase items online].)  
3. Suggest the most suitable software development model to build this system and  
clarify why you choose this model by the following criteria: (3 points)  
a. Requirements characteristics  
- reliability  
- types and number of requirements  
- how often the requirements can change  
- can the requirements be defined at an early stage  
b. Development team:  
- team size  
- level of understanding of user requirements by the developers  
c. User involvement in the project (Small/Average/Large)  
4. Draw a story map (at least 3 levels) for the "Travel planning" feature.(3  
points)

Answers

Cách 0 (GPT)

Q1:

**Functional requirements:**

Administrative department:

* Booking process for flights, hotels, and meeting rooms
* Ability to cancel bookings in urgent situations

Managers:

* Ability to assign employees to trips
* View cost calculation of trips
* View number of employees and locations involved in the trip
* Manage travel policies and control costs

**Non-functional requirements:**

* System should be reliable and able to handle a large volume of bookings and data
* System should be secure to protect sensitive data

Q2:

**User stories for employees:**

* As an employee, I want to receive notifications for upcoming business trips at least 3 days in advance, so that I can plan my schedule accordingly.
* As an employee, I want to be able to view the daily itinerary for the business trip, including meeting times, locations, and hotel information, so that I can stay organized and prepared.

Q3:

- The most suitable software development model for this system would be the Agile methodology.

a. **Requirements characteristics**:

**Reliability**: Agile methodology allows for continuous testing and feedback, ensuring that the system is reliable and functions as expected.

**Types and number of requirements**: Agile is suitable for projects with changing and evolving requirements, which is likely in a travel booking system.

**How often the requirements can change**: Agile methodology allows for flexibility and adaptation to changing requirements throughout the project.

**Can the requirements be defined at an early stage**: Agile methodology focuses on creating a working prototype early in the project, with requirements defined and refined throughout the development process.

b. **Development team**:

Team size: Agile methodology is suitable for teams of any size, and can easily scale up or down as needed.

Level of understanding of user requirements by the developers: Agile methodology involves close collaboration with users and stakeholders, ensuring that developers have a deep understanding of user requirements.

c. User involvement in the project: Agile methodology emphasizes frequent user feedback and involvement, making it suitable for projects with a large level of user involvement.

Story map for the "Travel planning" feature:

Level 1:

Search for trip options

View trip details and pricing

Select preferred trip option

Submit trip for approval

Level 2:

View corporate rates and other rules

Determine best individual connection

Take into account personal preferences and specific company policies

Notify designated approver for approval

Level 3:

Check specified data when booking trip

Prompt user to complete profile if data is missing

Enter frequent-flyer cards and reserve seats

Carry out ticketing and service options

Send booking confirmation and calendar entry to traveling party

(NOTE)

Cách 1: 9.5

1. Two functional requirements of Administrative department are:

* They can book the trip basing on the plan, including airplane tickets, hotel, meeting room, and all of the services concerning the trip.
* They also cancel the booking in some urgent situations such as the weather, the decline from partners.

Four functional requirements of Managers are:

* They interact directly with the system, organize plan and modify the information of the trip.
* They are particularly concerned with assigning employees who take part in the trip (for business or for holiday travel), the duration, route, departure, and destination.
* They also view the cost calculation of the trips as well as the number of employees in charge, the number of locations that the trip go over.
* Managers can analyze and optimize the business travel process by using comprehensive reporting functions to generate predefined standard reports.

Two non-functional requirements of the system are:

* In travel expenses feature, all data is transferred during the trip and duplicate entries are removed.
* In travel planning, the search results are based on personal preferences and specific company policies.

1. Two user stories for Employees:

* As an employees, I want to give the request for absence in the trip that I am assigned so that I can inform the company about my absence in the trip to further handle my situation.
* As an employees, I want to view the calculation of cost in the trip so that I can see what things I have to pay and then I can consider if I can afford to book the trip.

1. Requirements characteristics:

• Reliability: the requirements are clear, and this project is possible to run. The requirements are high reliable.

• **types and number of requirements**: the requirements contains both non-functional and functional requirements (list above), the requirements are clear and not ambiguous. They know user need, know solution because the list 5 key features of the system and they also know two types of user that may make use of the OBT system. They list more than 8 number of requirements including 6 functional requirements and 2 non-functional requirements.

• How often the requirements can change: Because they define requirements very well, and the IT team has experience and knowledge of business terms because in the context, it mentions : “The development team will be supported from the company to understand the terms of this business but rarely.” so that the requirements can be describe as predictive and the requirements will not be change on a regular basis.

• Can the requirements be defined at an early stage: As I mentioned above, the requirements are expressed in great details, everything is fine and clear enough. The requirements are easy to understand, so that the requirements are defined at an early stage.

1. Development team:

• team size: the context mentioned above: “the team working on this project consists of 4 developers , 2 QAs and 1 Team leaders”. So, we can conclude that this project is average size not too big and the team size is not too big.

• level of understanding of user requirements by the developers: The IT team may understand enough of this project because they don’t need the company support to understand the terms of business regularly.

1. User involvement in the project:

* Small because the requirements are define very well and in the context they don’t mention about the user involvement in project to test the system or check if the IT team building this tool fit their requirements because as I mention above the requirements expressed in great detail.

To conclude, because the system is defined in 5 key features, so that we can build in parts.

If the company want this tool to be delivered earlier to use quickly, to get feedback, then apply necessary change for anther parts then they can use the Incremental Model for the most suitable software development model to build this Online Booking Tool.

1. A story map for the “Travel planning” feature:

Diagram

Description automatically generated

PE SU22 HL  
on a nanny rather than staying at home with the kids.  
Taxis, meals, bouquets, and washing Nowadays, it seems as though any service can be purchased  
quickly. Why not watch children? Many families simply use nannies on occasion or in emergencies  
rather than full-time. What happens if no one is available to watch children when grownups  
unexpectedly have to leave the house? Uber for babysitters is the ideal answer for people who just  
occasionally require child care.  
Child care is frequently a part-time profession for sitters. However, where can I locate an on-demand  
job? Full-time workers are desired by childcare facilities and job boards. But very few parents will  
search VietnamWorks for a sitter for just a couple of hours a day, or even a couple of hours a week.  
Therefore, the easiest option for job searchers to discover part-time jobs is through babysitting-  
specific websites.  
Due to the above reasons, a start-up business wants to build a BabySitter application and you are a  
software development professional in this business. You are indicated to run into all kinds of  
projects and situations within those projects. Some features for parents are pre-defined as below:  
Creating an account and a family profile. Typically, platforms need parents to register  
before they can look for employees. They can avoid having to reveal the personal  
information of their babysitters in this way. The family's profile is generated after  
registration so they can introduce themselves.  
o Count the number of kids.  
o Add the kids' ages  
o Select your chosen childcare schedule.  
o Include the interests, dietary preferences, and special requirements of the kids.  
。 Make clear the responsibilities of the position (cooking, transportation, homework  
help).  
Search: Babysitters should be searchable by experience, availability, area, pay rate, rating,  
and background for parents.  
Job posting: Allow parents to publish job postings that babysitters can access. The number  
of children, their ages, the schedule, a description of their responsibilities, the location, and  
the rate should all be included by the parents.  
Please answer the below questions:  
1. What software development methodology would you suggest for this situation and why?  
(3 points)

2. You suggest 4 functional requirements which you suppose are necessary for babysitters. (1.5  
points).  
3. Write 2 user stories based on your suggestions in question 2. (1 point)  
4. For the dashboard of parents in the Web app, create a story map to show the user experience  
and what you need to build. Feel free to add fictitious functionality and features as you feel  
appropriate. You will be graded on the quality, completeness, and correctness of your story  
map. (2 points).  
5. Despite the software development methodology you have chosen, your manager requires you  
to choose the LEAN methodology to apply to this project.  
a. Should you agree with this requirement or not? If NO, please give the appropriate  
explanation for the WHY question. If YES, give your proposed ideas to require end  
users and another team that could assist you in choosing the LEAN methodology to  
develop this application. (1.5 points)  
b. What kind of testing would you suggest the team do? (1 point)

Q1: For this situation, I would suggest using an Agile software development methodology, specifically Scrum. Scrum would be appropriate because it is well-suited for fast-paced environments with changing requirements and priorities. The project can be broken down into small, manageable chunks of work, called sprints, which can be completed in short timeframes. This approach allows for continuous feedback and adaptation to changes, which is important for a start-up business like this. Additionally, Scrum allows for effective collaboration between the development team and stakeholders, which is essential for a project like this where requirements may change frequently.

Q2:

The four functional requirements that are necessary for babysitters are:

* Availability: Babysitters should be able to set their availability on the platform so that parents can see when they are free to work.
* Profile: Babysitters should have a profile on the platform that includes their experience, background, and any certifications or training they have received.
* Rating and reviews: Babysitters should have a rating and reviews system so that parents can see the experiences of other families who have used their services.
* Messaging: Babysitters and parents should be able to communicate through the platform to discuss job details and ask questions.

Q3:

* User story 1: As a babysitter, I want to be able to set my availability on the platform, so that parents can see when I am available to work.
* User story 2: As a parent, I want to be able to see a babysitter's rating and reviews, so that I can make an informed decision about who to hire for my children.

**PE Spring 2022**

MaMaSpa is one of the most well-known spas for messaging therapies and spa treatments. There  
are currently three branches in Vietnam's south. Every branch manage one's Information basing on  
Microsoft Excel. Employees and managers at the branch use the same data file for booking  
management, appointment management, product management and reporting.  
MaMaSpa's CEO wants to modernize the information system to make management and sales easier.  
You are require developing Web application for manager, employees and customers.  
4  
Some features shall be added to support customer such as online booking management,  
membership management, gift certificate, credit-card processing, SMS and text reminders and  
transaction management. For manager, the dashboard provides a view of upcoming appointments,  
statistics, daily transactions and revenue. Other features include credit-card processing, photo  
management, weekly scheduling, reception mode, a dashboard, SMS and text reminders and  
transaction management. The scheduling module provides a calendar view, an appointment wizard,  
staff management, overbooking management and color coding. The payment tracking feature  
records items sold, discounts and tax rates.  
For employee, some features are pre-defined by the employees of MaMaSpa:  
1. View their shift by month, by week, by day.  
2. Request change their shift in case of they have an emergency business.  
3.  
View list of services and customers by shift.  
4. Receive notification regarding services/customers that they had served.

5. Update customer's information concerning their shift, including payment, gift-card, voucher  
and so on..  
6. View their income, commision by month, by year.  
The Web application should compatible with a wide range of browsers such as Sarafi, Firefox,  
Chrome, CocCoc... The language is used for Web application including Vietnamese, French, English.  
As a software development professional, you will run into all kind of projects and situations within  
those projects. The IT support of MaMaSpa could assist you in elicitate some missing requirements  
in the early stage. Please answer below questions:  
1. What software development methodology would you suggest for this situation and why?  
(3 points)  
identifying the characteristics of this situation and specify the logic behind the selection  
of characteristics  
Select a model that best fits the characteristics you identified above.  
2. List out 4 functional requirements of employees' role and 2 non-functional requirements of  
system. (1.5 points)  
3 Write 2 user stories of employees'role. (1 point)

4. For the dashboard of employee in Web app, create a story map to show the user experience  
and what you need to build. Feel free to add fictitious functionality and features as you feel  
appropriate. You will be graded on the quality, completeness, and correctness of your story  
map. (2 points).  
5. Despite the software development methodology you have chosen, your manager requires you  
to choose Waterfall Software Development to apply this project.

Q1:

Software Development Methodology:

Considering the complexity and requirements of the project, I would recommend the Agile methodology. The Agile methodology emphasizes customer collaboration, incremental delivery, and continuous improvement. Since MaMaSpa's requirements are likely to evolve and change over time, Agile's iterative and flexible approach can help ensure that the application meets the changing needs of the business.

* Types and number of requirements:

Based on the provided information, there are two types of requirements: functional requirements and non-functional requirements. The number of requirements is not explicitly stated, but here is a breakdown of the main requirements mentioned in the scenario:

**Functional requirements:**

Online booking management

Membership management

Gift certificate management

Credit-card processing

SMS and text reminders

Transaction management

Dashboard with view of upcoming appointments, statistics, daily transactions, and revenue

Photo management

Weekly scheduling

Reception mode

Calendar view

Appointment wizard

Staff management

Overbooking management

Color coding

Payment tracking for items sold, discounts, and tax rates

**Non-functional requirements:**

Compatibility with a wide range of browsers (Safari, Firefox, Chrome, CocCoc)

Language support for Vietnamese, French, and English

🡪Additionally, there are specific requirements mentioned for employees, such as viewing their shift schedules, requesting shift changes, viewing customer/service lists by shift, receiving notifications about customers they've served, updating customer information, and viewing their income and commission by month/year. It is not explicitly stated whether these requirements are considered functional or non-functional.

Dựa trên thông tin được cung cấp, có hai loại yêu cầu: yêu cầu chức năng và yêu cầu phi chức năng. Số lượng yêu cầu không được nêu rõ ràng, nhưng đây là bảng phân tích các yêu cầu chính được đề cập trong kịch bản:

Yêu cầu chức năng:

Quản lý đặt phòng trực tuyến

quản lý thành viên

Quản lý phiếu quà tặng

xử lý thẻ tín dụng

SMS và lời nhắc văn bản

quản lý giao dịch

Bảng điều khiển với chế độ xem các cuộc hẹn sắp tới, số liệu thống kê, giao dịch hàng ngày và doanh thu

quản lý ảnh

lập kế hoạch hàng tuần

chế độ lễ tân

Chế độ xem lịch

trình hướng dẫn cuộc hẹn

quản lý nhân viên

quản lý đặt trước quá nhiều

Mã màu

Theo dõi thanh toán cho các mặt hàng đã bán, giảm giá và thuế suất

Những yêu cầu phi lý:

Khả năng tương thích với nhiều loại trình duyệt (Safari, Firefox, Chrome, CocCoc)

Hỗ trợ ngôn ngữ tiếng Việt, tiếng Pháp và tiếng Anh

Ngoài ra, có các yêu cầu cụ thể được đề cập cho nhân viên, chẳng hạn như xem lịch làm việc của họ, yêu cầu thay đổi ca, xem danh sách khách hàng/dịch vụ theo ca, nhận thông báo về khách hàng họ đã phục vụ, cập nhật thông tin khách hàng và xem thu nhập và hoa hồng của họ theo tháng /năm. Nó không được nêu rõ ràng liệu các yêu cầu này được coi là chức năng hay phi chức năng.

Q2:

Functional Requirements of Employee Role:

View their shift schedule by month, week, and day.

Request a shift change in case of an emergency.

View a list of services and customers for their shift.

Update customer information related to their shift, including payment, gift cards, vouchers, etc.

Non-functional Requirements:

Security: The system should ensure the confidentiality and integrity of sensitive customer and business data.

Usability: The system should be easy to use and navigate for employees of varying technical abilities.

Q3:

User Stories of Employee Role:

As an employee, I want to be able to view my shift schedule for the month, week, or day, so that I can plan my availability and schedule appointments accordingly.

As an employee, I want to be able to update customer information related to my shift, including payment, gift cards, vouchers, etc., so that I can provide accurate and up-to-date information to customers.

Q4:

STORY MAP:

Epic: Employee Dashboard

Security and Usability

Income and Commission Tracking

Services and Customers

Shift Change

Shift Schedule

Customer Information

--------------------------------------------------- Release 1 -----------------------------------------

Income Tracking: displays the employee's earnings for the selected time period.

Calendar view: see shift schedule for the selected time period

Customer Details: displays the details of the selected customer.

Shift Change Request Form: submit a request to change their shift

Services List - list of services scheduled for the selected shift.

Role-based Access Control

--------------------------------------------------- Release 2 -----------------------------------------

Connect with customers to check information.

Shift Details: details of the selected shift

Commission Tracking: display commission earnings

Shift Change Approval: displays the status of shift change requests

Customers List: list of customers scheduled for the selected shift.

Color Coding: easy for employees to identify important information at a glance

--------------------------------------------------- Release 3 -----------------------------------------

Update customer information related to their shift.

Responsive Design - accessed on a wide range of devices.

track the income and commission by month or year.

view a list of services and customers.

request a shift change in case of an emergency.

view my shift schedule for the month, week, or day.

Q5:

A:

As a software development professional, I would not recommend using the **Waterfall** methodology for this project because of the following reasons:

* Waterfall is a rigid and sequential process that doesn't allow for changes to be made easily once the project has started. This can be a problem in a project like MaMaSpa's, where requirements are likely to evolve over time.
* Waterfall doesn't encourage customer involvement throughout the development process. This means that the final product may not meet the customers' needs or expectations.
* Waterfall doesn't allow for much flexibility or experimentation during development, which can limit creativity and innovation.

If my manager insists on using Waterfall, I would propose the following ideas to try to convince them to switch to Agile:

* Conduct a presentation or workshop to explain the benefits of Agile, such as increased customer involvement, faster feedback loops, and more flexibility.
* Show examples of successful Agile projects in similar industries to demonstrate its effectiveness.
* Offer to start with a small pilot project using Agile to demonstrate its benefits.

b. For testing, I would suggest the following types of testing:

* Functional testing: to ensure that the application functions as expected and meets the functional requirements.
* Integration testing: to ensure that different components of the application work together seamlessly.
* Performance testing: to ensure that the application can handle a large number of users and transactions without slowing down or crashing.
* Usability testing: to ensure that the application is easy to use and intuitive for end-users.
* Security testing: to ensure that the application is secure and protect sensitive data from unauthorized access.

FALL22

There has never been a more crucial period to have easy access to all of the planet. The  
development of travel apps is therefore equally significant and profound. As more users invest time in studying and preparing for their upcoming major trips or business destination, there are an increasing number of travel apps available for iOS and Android devices. Given the 1700% increase in mobile bookings in the travel sector since 2015, it is predicted that 31% of all travelers will research and book their upcoming trips using a smartphone or tablet. Of course, a modern traveler expects more from a travel app than just the ability to reserve a hotel or search for available accommodations.

Therefore, a start-up company desires to develop an application with more features to bring more  
convenience to travelers. A Transportation Services for travelers’ application is recommended to  
start first. Some features of Transportation Services for travelers are defined below:

**- Embedding GPS Tracking for Real-Time Arrivals:** People are currently wasting time guessing at train or bus schedules. Travelers can view real-time arrival updates from the transport media by using the GPS tracking feature. They also need to locate real-time information on the nearest feasible transportation methods.  
**- Map and Navigational Tools for the Guide**: Include a geolocation map for the city's  
specialized public transportation services in the transportation app, and give customers real-  
time navigational assistance for their travel needs.  
- **A schedule and offline routes are available**: All frequent commuters who follow a set route, set of stations, and set of places enjoy offline viewing. Users of transportation applications  
now have access to offline displays of schedules and routes, making it simple for them to  
plan their route from point A to point B.  
**- Push Alerts For Unexpected Failures**: Applications can notify internet users in real-time of  
events like crises or unexpected outages, delays, traffic jams, new construction, etc. Thus,  
they may plan out the bus or rail schedules in more detail. Users of the application can get  
real-time updates on public transportation to their preferred location.  
**Please answer these questions:**  
1. What software development methodology would you suggest for this situation and why?  
(3 points)  
identifying the characteristics of this situation and specifying the logic behind the  
selection of characteristics  
Select a model that best fits the characteristics you identified above.  
2. List out 4 functional requirements in which you are interested in travel planners. (1.5 points).  
3. Write 2 user stories based on your answers in question 2. (1 point)  
4. For the screen of travelers in the mobile app, create a story map to show the user experience  
and what you need to build. Feel free to add fictitious functionality and features as you feel  
appropriate. You will be graded on the quality, completeness, and correctness of your story  
map. (2 points).  
5. Despite the software development methodology you have chosen, your teammates argue with  
you and they would like to choose the SPIRAL methodology to apply to this project.  
a. Should you agree with this requirement or not? If NO, please give the appropriate  
explanation for the WHY question. If YES, give your proposed ideas to require end  
users and another team that could assist you in choosing the SPIRAL methodology to  
develop this application. (1.5 points)

b. What kind of testing would you suggest the team to do? (1 point)

GIẢI:

Q1:

For this situation, I would suggest using an Agile development methodology. Agile methodology is a flexible approach that emphasizes collaboration, customer satisfaction, and iterative development. The characteristics of this situation, such as the need for real-time updates and the expectation for more features, require a flexible and responsive approach to development. Agile methodology also allows for frequent feedback and changes, which can be useful in the development of a travel app where customer needs may change frequently.

(CÁCH 2)

Distinguishing the attributes:

+ Unwavering quality: the necessities should be visible plainly.

+ The prerequisite is clear, clients plainly express their assumptions and necessity doesn't change so a lot and has stable properties.

+ About kinds of necessities:

+ Utilitarian necessities:

+ Look for objections and agendas: searching for recommending venture on map.

+ Add objective recordings, with movement proposals for better commitment: add video about place for experience.

+ Updates: push advise registration time or entryway number.

+ Non-utilitarian necessities:

+ Store tickets (carriers etc.): store ticket when registration/look at.

+ Number of necessities is normal.

+ It tends to be characterized by 4 fundamental areas.

+ This venture is a totally and recently constructed portable application.

+ About improvement group:

Group size: very enormous, in excess of 15 individuals

Group has programming improvement proficient in a product organization.

+ Client needs to create the application and they know obviously what the prerequisite is and arranged cautiously.

+ Determine the rationale: In this present circumstance, the point given is that I need to foster a versatile application for voyagers and make it accessible for them to save time and increment experience and invest their energy searching for the best spot to have an occasion. As per that, a first portable application that incorporates front-end, back-end and data set can chronicle client's data.

+ Back-end: this versatile application will incorporate 2 jobs:

+ Administrator (chief): add, erase client; add new objective and schedules, erase, change old objective and agendas.

+ Explorers: they will remember a few capabilities for the primary page:

+ Voyagers can check the tickets they presently have.

+ Explorers can look for objective on map.

- As per the circumstance, it's ideal to carry out the Cascade of Waterfall method to foster this application, all periods of the task necessities will be characterized toward the beginning with the new business, and the final result will be shipped off the client after it is done.

Q2:

Four functional requirements that may be of interest to travel planners include:

* The ability to search for and book flights, hotels, and rental cars
* Integration with GPS and map services for navigation and real-time updates
* The ability to view and compare prices for different travel options
* Access to travel itineraries and trip planning tools

(CACH 2:)

(-Flight search and booking: The ability to search for flights based on specific criteria such as departure and arrival locations, dates, and prices, and to book the selected flights.

-Accommodation search and booking: The ability to search for hotels or other types of accommodation based on specific criteria such as location, price, availability, and amenities, and to book the selected accommodations.

-Itinerary planning and management: The ability to create and manage travel itineraries that include transportation, accommodations, and activities. This could include features such as calendar integration, reminders, and the ability to add notes or other details.

-Local recommendations and information: The ability to provide users with information about local attractions, restaurants, and other points of interest, as well as personalized recommendations based on their preferences and interests. This could include features such as reviews, ratings, and the ability to save or share recommendations.)

Q3:

User stories:

* As a frequent traveler, I want to be able to quickly search for and book flights, hotels, and rental cars in one place, so that I can save time and compare prices easily.
* As a commuter, I want to receive real-time updates on transportation schedules and delays, so that I can plan my route and arrive at my destination on time.

Q4:

Story map:

Landing page: The landing page would feature a search bar for users to enter their travel information, such as destination and dates, and a list of popular destinations.

Search results: After a user enters their travel information, they would be directed to a page with search results for flights, hotels, and rental cars. They can sort and filter the results based on their preferences.

Travel itinerary: Once a user books their travel, they would have access to a travel itinerary that shows their flights, hotel bookings, and rental car reservations. They can also add notes and reminders to their itinerary.

GPS and map services: The app would integrate with GPS and map services to provide real-time updates on transportation schedules and delays, and to provide navigation assistance to users.

User profile: Users can create a profile to save their travel preferences and payment information for easier booking in the future.

(Story Map:

Title: Transportation Services for Travelers App

Epics:

Real-Time Arrival Updates

Navigational Assistance

Offline Schedule and Routes

Push Alerts for Unexpected Failures

User Stories:

As a traveler, I want to be able to view real-time arrival updates for public transportation so that I can plan my trip more efficiently and not waste time guessing at schedules.

As a traveler in a new city, I want the app to provide me with navigational assistance, including a geolocation map for the city's specialized public transportation services and real-time guidance on how to get to my destination.

As a frequent commuter, I want to be able to access offline displays of schedules and routes so that I can plan my route from point A to point B even without an internet connection.

As a traveler, I want to receive push alerts in real-time about unexpected failures, such as crises, outages, delays, traffic jams, and new construction, so that I can plan my bus or rail schedules in more detail.

Task Breakdown:

Epic 1: Real-Time Arrival Updates

Display real-time arrival updates for public transportation on the app's home screen.

Allow users to search for real-time information on the nearest feasible transportation methods.

Epic 2: Navigational Assistance

Include a geolocation map for the city's specialized public transportation services.

Provide real-time navigational assistance to guide users to their destination.

Epic 3: Offline Schedule and Routes

Allow users to access offline displays of schedules and routes for frequent commuters who follow a set route, set of stations, and set of places.

Epic 4: Push Alerts for Unexpected Failures

Notify users in real-time about unexpected failures, such as crises, outages, delays, traffic jams, and new construction.

Allow users to get real-time updates on public transportation to their preferred location.

Additional Features:

Allow users to save favorite routes and destinations for easy access.

Provide users with estimated time of arrival (ETA) for their destination.

Allow users to purchase tickets and passes for public transportation directly from the app.

Integrate with ride-sharing services such as Uber or Lyft to offer alternative transportation options.

Allow users to rate and review public transportation services.)



Offline Schedule and Routes

Real-Time Arrival Updates

Plush Alerts for Unexpected Failures

Navigational Assistance

--------------------------------------------------- Release 1 -----------------------------------------

access offline displays of schedules and routes for frequent commuters

Notify users in real-time about unexpected failures.

Include a geolocation map for the city's specialized public transportation services.

Display real-time arrival updates for public transportation.

--------------------------------------------------- Release 2 -----------------------------------------

Allow users to get real-time updates on public transportation to their preferred location.

set route, set of stations, and set of places.

Provide real-time navigational assistance.

Allow users to search for real-time information on the nearest feasible transportation methods.

--------------------------------------------------- Release 3 -----------------------------------------

Allow users to save favorite routes and destinations for easy access.

Provide users with estimated time of arrival (ETA) for their destination.

Allow users to rate and review public transportation services.

Allow users to purchase tickets and passes for public transportation directly from the app.

Q5:

a. I would not agree with using the SPIRAL methodology for this project. SPIRAL is a risk-driven methodology that is more suited for complex and large-scale projects. The characteristics of this project, such as the focus on customer satisfaction and iterative development, are better suited for Agile methodology. However, if the team insists on using SPIRAL, I suggest involving end-users and other team members in the decision-making process to ensure that the methodology is appropriate for the project's needs.

b. I would suggest the team perform testing such as unit testing, integration testing, and acceptance testing. Unit testing involves testing individual components of the application, integration testing involves testing how different components work together, and acceptance testing involves testing whether the application meets the user's requirements. The team could also consider performing usability testing to ensure that the application is user-friendly and meets the needs of its users.

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**Business Requirements**: Let's say a company wants to develop a new e-commerce platform. Some business requirements for the system might include:

Ability to handle a large number of concurrent users and transactions

Support for multiple payment methods and currencies

Integration with the company's existing inventory and order management systems

Ability to track customer behavior and preferences for targeted marketing

**User Requirements**: The user requirements for the e-commerce platform might include:

Simple and intuitive user interface for easy browsing and purchasing

Fast loading times and responsive design for mobile devices

Ability to save and compare items for later purchase

Options for filtering and sorting search results

**System Requirements**: The system requirements for the e-commerce platform might include:

Web server and database to handle user requests and store data

Payment gateway integration for secure and reliable transactions

Content delivery network (CDN) for fast and efficient delivery of website content

Load balancer for distributing traffic across multiple servers

**Technical Requirements**: The technical requirements for the e-commerce platform might include:

Compatibility with multiple web browsers and operating systems

Use of responsive web design techniques to optimize for mobile devices

Compliance with web standards and best practices for security and performance

Integration with third-party APIs and services for additional functionality

**Regulatory Requirements**: The regulatory requirements for the e-commerce platform might include:

Compliance with data protection regulations such as GDPR or CCPA

Secure handling of customer payment information and personal data

Compliance with accessibility standards for users with disabilities

Compliance with tax and customs regulations for international sales.

**Yêu cầu kinh doanh**: Giả sử một công ty muốn phát triển một nền tảng thương mại điện tử mới. Một số yêu cầu kinh doanh cho hệ thống có thể bao gồm:

Khả năng xử lý một số lượng lớn người dùng và giao dịch đồng thời.

Hỗ trợ nhiều phương thức thanh toán và tiền tệ

Tích hợp với hệ thống quản lý đơn hàng và hàng tồn kho hiện có của công ty

Khả năng theo dõi hành vi và sở thích của khách hàng để tiếp thị mục tiêu

**Yêu cầu người dùng**: Yêu cầu người dùng đối với nền tảng thương mại điện tử có thể bao gồm:

Giao diện người dùng đơn giản và trực quan để dễ dàng duyệt và mua hàng

Thời gian tải nhanh và thiết kế đáp ứng cho thiết bị di động

Khả năng lưu và so sánh các mặt hàng để mua sau

Tùy chọn lọc và sắp xếp kết quả tìm kiếm

**Yêu cầu hệ thống**: Yêu cầu hệ thống cho nền tảng thương mại điện tử có thể bao gồm:

Máy chủ web và cơ sở dữ liệu để xử lý các yêu cầu của người dùng và lưu trữ dữ liệu

Tích hợp cổng thanh toán cho các giao dịch an toàn và đáng tin cậy

Mạng phân phối nội dung (CDN) để phân phối nội dung trang web nhanh chóng và hiệu quả

Cân bằng tải để phân phối lưu lượng trên nhiều máy chủ

**Yêu cầu kỹ thuật**: Các yêu cầu kỹ thuật cho nền tảng thương mại điện tử có thể bao gồm:

Khả năng tương thích với nhiều trình duyệt web và hệ điều hành

Sử dụng các kỹ thuật thiết kế web đáp ứng để tối ưu hóa cho thiết bị di động

Tuân thủ các tiêu chuẩn web và thực tiễn tốt nhất về bảo mật và hiệu suất

Tích hợp với các dịch vụ và API của bên thứ ba để có chức năng bổ sung

**Yêu cầu quy định**: Các yêu cầu quy định đối với nền tảng thương mại điện tử có thể bao gồm:

Tuân thủ các quy định bảo vệ dữ liệu như GDPR hoặc CCPA

Xử lý an toàn thông tin thanh toán và dữ liệu cá nhân của khách hàng

Tuân thủ các tiêu chuẩn tiếp cận dành cho người dùng khuyết tật

Tuân thủ các quy định về thuế và hải quan đối với bán hàng quốc tế.

* Functional Requirements: These describe what a system must do, specifying its functions and capabilities.

(Yêu cầu chức năng: Những yêu cầu này mô tả những gì một hệ thống phải làm, chỉ định các chức năng và khả năng của nó).

* Non-Functional Requirements: These describe how well the system must perform its functions, specifying its performance, reliability, usability, and other characteristics.

(Yêu cầu phi chức năng: Những yêu cầu này mô tả hệ thống phải thực hiện các chức năng của nó tốt như thế nào, chỉ định hiệu suất, độ tin cậy, khả năng sử dụng và các đặc điểm khác của nó.)

* Business Requirements: These describe the business objectives and goals that the system is intended to support.

(Yêu cầu kinh doanh: Chúng mô tả các mục tiêu và mục tiêu kinh doanh mà hệ thống dự định hỗ trợ).

* User Requirements: These describe the needs, goals, and tasks of the system's users.

(Yêu cầu người dùng: Những yêu cầu này mô tả nhu cầu, mục tiêu và nhiệm vụ của người dùng hệ thống).

* System Requirements: These describe the hardware, software, and network infrastructure needed to support the system.

(Yêu cầu hệ thống: Những yêu cầu này mô tả cơ sở hạ tầng phần cứng, phần mềm và mạng cần thiết để hỗ trợ hệ thống.)

* Technical Requirements: These describe the technical specifications of the system, such as its architecture, interfaces, and protocols.
* (Yêu cầu kỹ thuật: Những yêu cầu này mô tả các thông số kỹ thuật của hệ thống, chẳng hạn như kiến ​​trúc, giao diện và giao thức của nó.)
* Regulatory Requirements: These describe the legal and regulatory requirements that the system must comply with.

(Yêu cầu quy định: Những yêu cầu này mô tả các yêu cầu pháp lý và quy định mà hệ thống phải tuân thủ.)

RETAKE HL FALL 2022

(NOTE)

We still need to schedule appointments with people to fix issues that pertain to our everyday lives, such as pest management, mechanical, electrical, and thermal problems, as well as plumbing-related issues. To make an appointment with a service provider, we must call him or arrange a personal meeting. However, many issues can arise, such as the service provider being overwhelmed elsewhere or being absent from his office when we visit, or the service provider demanding high fees to fix the issue, which makes it unlikely that we will be able to make an appointment with the provider at the desired time.  
To overcome these problems, a start-up company would like to develop a mobile application and  
website that users can acquire to solve problems. For the first time, some features for customers on the mobile app are defined below:  
Quick booking: Customers using the mobile app can register quickly. The services offer the  
ability to sign up or register using a mobile number, email, or Facebook. Customers can  
rapidly book services after completing the sign-up process by classifying them according to  
their needs.  
Instant Notifications: Customer retention rates may be improved using real-time  
communications. Clients can view the status of their orders without visiting the app. In the  
push notifications they receive, 52% of users look for pertinent information and deals.  
Therefore, providing promotions and the newest offers and discounts is another purpose for  
the notifications.  
Easy browsing: One of the main USPS of on-demand services is how simple it is to browse  
a certain service. Customers may easily navigate to the services and find the service they  
need by using the supplied filters.  
Rating & Review: This option is quite beneficial for prospective clients who are interested  
in using the services. Customers who have already used a service can rate it. As a result, the  
new clients can select highly regarded experts for their services.  
Payment Management: After the service provider has accepted the order, customers can  
opt to pay using a credit card, debit card, Paypal, or any other third-party wallet. The service  
provider will reserve the appointment's date and time after receiving payment.  
Please answer these questions:  
1. What software development methodology would you suggest for this situation and why?  
(3 points)  
- Identifying the characteristics of this situation and specifying the logic behind the  
selection of characteristics  
- Select a model that best fits the characteristics you identified above.  
2. List out 4 functional requirements in which you are interested in this app. (1.5 points).  
3. Write 2 user stories based on your answers in question 2. (1 point)  
4. For the screen of mobile app, create a story map to show the user experience and what you  
need to build. Feel free to add fictitious functionality and features as you feel appropriate. You  
will be graded on the quality, completeness, and correctness of your story map. (2 points).  
5. Despite the software development methodology you have chosen, your teammates argue with  
you and they would like to choose the INCREMENTAL methodology to apply to this project.  
a. Should you agree with this requirement or not? If NO, please give the appropriate  
explanation for the WHY question. If YES, give your proposed ideas to require end  
users and another team that could assist you in choosing the INCREMENTAL  
methodology to develop this application. (1.5 points)  
b. What kind of testing would you suggest the team do? (1 point)

Solution:

Q1:

Based on the characteristics of the situation described, I would recommend using the Agile software development methodology. Here are the characteristics of this situation and why I suggest Agile:

* Rapidly changing requirements: The start-up company is trying to develop an app that solves real-life problems. Requirements are likely to change frequently as the company gets feedback from users and learns more about what works and what doesn't. Agile is well-suited for this kind of situation because it allows for flexibility and can adapt to changing requirements.
* Short development cycles: The company wants to get their product to market quickly. Agile's iterative approach enables the team to deliver working software in short, manageable cycles. Each cycle provides an opportunity to gather feedback, make adjustments, and move closer to the final product.
* Collaboration: Agile emphasizes teamwork, collaboration, and open communication between the development team and stakeholders. This is critical in a situation where the company is trying to develop an app that meets the needs of its users. Agile provides a framework for continuous collaboration and feedback, which can help ensure that the final product meets the needs of its users.
* Continuous delivery: Agile focuses on delivering working software in small increments. This allows the company to test the app with users and get feedback early and often. Continuous delivery helps to identify issues and address them quickly, reducing the risk of delays or costly rework later in the development process.
* Based on these characteristics, I recommend using the Scrum framework within Agile. Scrum provides a structured approach to Agile development, with clearly defined roles and responsibilities, ceremonies, and artifacts. It emphasizes teamwork, collaboration, and continuous improvement, all of which are important in this situation. Scrum also provides a framework for managing requirements, prioritizing work, and delivering working software in short, manageable sprints.

Q2:

Here are four functional requirements that could be included in the app:

Service provider directory: A searchable directory of service providers, with information on their availability, services offered, and customer ratings and reviews.

Booking and scheduling system: Customers should be able to book and schedule appointments with service providers based on their availability and the services they need.

Real-time notifications: Customers should receive real-time notifications about the status of their appointments, including reminders and updates.

Payment processing: Customers should be able to pay for services securely and easily using a variety of payment methods.

Q3:

Two possible user stories based on the functional requirements above are:

* As a busy homeowner, I need to quickly find a reliable service provider who can fix my plumbing issues. With the app's service provider directory, I can easily search for and compare plumbers based on their ratings, availability, and services offered. Once I find the right provider, I can quickly book and pay for an appointment using the app and receive real-time notifications about the appointment status.
* As a service provider, I need to efficiently manage my schedule and appointments to maximize my productivity and earnings. With the app's booking and scheduling system, I can easily view and accept new appointments based on my availability and receive real-time notifications about new bookings and changes to my schedule. The app's payment processing system also ensures that I receive prompt and secure payments for my services.

Q4:

Home Screen

Shows options to sign up or log in using mobile number, email or Facebook.

Provides categories for services such as pest management, mechanical, electrical, and plumbing-related issues.

Shows promotions and the newest offers and discounts for users.

Service Selection Screen

Allows users to select the service they need by using the supplied filters.

Provides options to view service details and ratings and reviews by other customers.

Booking Screen

Enables users to book services after selecting the service they need.

Allows users to choose a convenient date and time for the appointment.

Shows the estimated cost of the service.

Provides payment options such as credit card, debit card, Paypal or other third-party wallets.

Appointment Screen

Displays the details of the appointment such as service provider name, date and time of appointment, and service cost.

Shows options to cancel or reschedule the appointment.

Notification Screen

Sends push notifications to the user regarding the status of their order and any relevant deals or promotions.

Rating and Review Screen

Enables customers who have already used a service to rate and review it.

Provides prospective clients with highly regarded experts for their services.

Overall, the story map depicts a smooth and efficient user experience in booking services and managing appointments.

(bản đồ câu chuyện mô tả trải nghiệm người dùng mượt mà và hiệu quả trong việc đặt dịch vụ và quản lý các cuộc hẹn.)

Rating and Review Screen

Home Screen

Notification Screen

Appointment Screen

Booking Screen

Service Selection Screen

--------------------------------------------------- **Release 1** -----------------------------------------

sign up or log in using mobile number, email or Facebook.

Sends push notifications to the user regarding the status of their order and any relevant deals or promotions.

Displays the details of the appointment

Enables users to book services after selecting the service they need.

Allows users to select the service they need by using the supplied filters

--------------------------------------------------- **Release 2** -----------------------------------------

Provides categories for services

Enables customers who have already used a service to rate and review it.

Shows options to cancel or reschedule the appointment.

Allows users to choose a convenient date and time for the appointment.

Provides options to view service details and ratings and reviews by other customers.

---------------------------------------------------- **Release 3** -----------------------------------------

Shows promotions and the newest offers and discounts for users.

Provides payment options such as credit card, debit card, Paypal or other third-party wallets.

Shows the estimated cost of the service.

Provides prospective clients with highly regarded experts for their services.

Q5:

(mac dinh la k dong y )

a. Whether or not to agree with the requirement of using the INCREMENTAL methodology depends on the project's complexity, team size, and the product's expected delivery date. **Incremental** methodology emphasizes iterative, incremental development and frequent releases of smaller product increments, each with a working set of features. If the project is large, has many requirements, and requires a longer time to complete, an incremental approach could be more suitable. However, if the project has a smaller scope and a shorter timeline, using an agile methodology such as Scrum could be more efficient.

b. Testing is an essential aspect of software development, regardless of the methodology used. To ensure the mobile application's quality, the team could perform various testing types such as unit testing, integration testing, functional testing, and acceptance testing. In the incremental methodology, testing is done after each increment, so the team can detect and resolve issues early in the development cycle. Furthermore, the team could leverage automated testing tools to speed up the testing process and reduce the testing time required.

(A.Việc có đồng ý với yêu cầu sử dụng phương pháp TĂNG TIỀN hay không tùy thuộc vào mức độ phức tạp của dự án, quy mô nhóm và ngày giao hàng dự kiến ​​của sản phẩm. Phương pháp gia tăng nhấn mạnh sự phát triển lặp đi lặp lại, gia tăng và phát hành thường xuyên các phần gia tăng sản phẩm nhỏ hơn, mỗi phần có một bộ tính năng hoạt động. Nếu dự án lớn, có nhiều yêu cầu và cần thời gian dài hơn để hoàn thành, thì phương pháp gia tăng có thể phù hợp hơn. Tuy nhiên, nếu dự án có phạm vi nhỏ hơn và thời gian ngắn hơn, thì việc sử dụng một phương pháp linh hoạt như Scrum có thể hiệu quả hơn.

b. Kiểm thử là một khía cạnh thiết yếu của phát triển phần mềm, bất kể phương pháp nào được sử dụng. Để đảm bảo chất lượng của ứng dụng di động, nhóm có thể thực hiện nhiều loại thử nghiệm khác nhau như thử nghiệm đơn vị, thử nghiệm tích hợp, thử nghiệm chức năng và thử nghiệm chấp nhận. Trong phương pháp gia tăng, thử nghiệm được thực hiện sau mỗi lần gia tăng, vì vậy nhóm có thể phát hiện và giải quyết sớm các vấn đề trong chu kỳ phát triển. Hơn nữa, nhóm có thể tận dụng các công cụ kiểm tra tự động để tăng tốc quá trình kiểm tra và giảm thời gian kiểm tra cần thiết.).