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UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING



SOFTWARE ENGINEERING (CO3001)

SSPS SOFTWARE REPORT

Task 1.1 1.2

GROUP CC03-05

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1 Task descriptions

1.1: Describe the domain context of a smart printing service for students at HCMUT. Who are relevant stakeholders? What are their current needs? In your opinion, what benefits HCMUT-SSPS will be for each stakeholder?

1.2: Describe all functional and non-functional requirements that can be inferred from the project description.

2 Domain Context and Stakeholder Analysis for HCMUT Smart Student Printing Service (HCMUT-SSPS)

2.1 Domain Context

At Ho Chi Minh University of Technology, students regularly need to print documents such as books, notes for exams, lecture notes and slides. Traditional printing methods such as going out and finding a photocopy service can be time consuming and inefficient. To address this problem, the university plans on implementing the HCMUT Smart Student Printing Service (HCMUT-SSPS). This system will streamline the printing process by allowing students to upload files digitally, select printers located across the campus, and customize their print jobs. The service aims to enhance convenience by providing a web-based and mobile application that integrates with the university's Single Sign-On (SSO) authentication system.

2.2 Stakeholders and Their Needs

Relevant stakeholders include students, the Student Printing Service Officer (SPSO) and the university's IT department.

- **Students** require easy access to printing facilities without long waits or manual intervention. They need flexible options for file formats, print settings, and online payment systems for purchasing additional print quotas.
- The **SPSO** is responsible for maintaining and configuring the system, including managing printers, setting default page quotas, configuring file type permissions, and generating reports on printing usage. The SPSO also needs tools to monitor student printing history for accountability and fairness.
- The **IT department** needs to ensure system stability, security, and integration with the university's SSO authentication. Their role also involves handling potential system updates, printer connectivity, and online payment security.

2.3 Benefits of HCMUT-SSPS for Each Stakeholder

The HCMUT-SSPS will provide significant benefits for all stakeholders.

- **Students** will experience a more efficient printing process, reducing time spent on printing and allowing them to focus on their studies. They will also benefit from an easy-to-use interface, flexible file options, and online payment integration.
- The **SPSO** will have better control over printer management and system configuration, as well as enhanced monitoring tools to ensure responsible usage. Automated reports will reduce the administrative burden, allowing for more efficient operations.
- The **IT department** will benefit from easier management of printers and user authentication, leading to a smoother user experience and fewer technical issues to resolve. Overall, the system will improve campus-wide access to printing and ensure more reliable service for everyone.

3 Functional and Non-Functional Requirements

3.1 Functional Requirements:

For student stakeholder

- The system shall allow students to upload document files to be printed.
- The system shall allow students to select a printer from a list of available printers.
- The system shall allow students to view their printing history for a specific time period.
- The system shall allow students to buy additional printing pages through an integrated online payment system.
- The system shall allow students to configure printing properties such as paper size, number of copies, and one-/double-sided printing.

For University IT Department:

- The system shall integrate with the university's SSO for user authentication.
- The system shall provide secure access to prevent unauthorized users from accessing the system.
- The system shall allow for data backup and recovery in case of failures.
- The system shall support integration with external payment systems (e.g., BKPay).
- The system shall allow for technical troubleshooting and support from the IT department.

For Student Printing Service Officer (SPSO):

- The system shall allow the SPSO to add, enable, or disable printers in the system.
- The system shall allow the SPSO to view the printing log of all students or individual students for a specified time period.
- The system shall allow the SPSO to change system configurations, including default page quotas and permitted file types.
- The system shall execute monthly and yearly reports on printing usage and store them for future access by the SPSO.
- The system shall allow the SPSO to set the dates for resetting the default number of A4 pages to students.

3.2 Non-Functional Requirements

Performance

- The system shall handle up to 1,000 concurrent users without significant performance degradation.
- The system shall respond to print requests within 3 seconds after submission.

Availability



- The system shall ensure high availability and reliability, with a maximum downtime of 1 hour per month.
- The system shall be available to all students during normal working hours (Mon-Fri, 7:00 - 18:00)

Usability

- The system shall provide a responsive user interface accessible on both web browsers and mobile devices.
- The system should provide real-time feedback on print status and errors

Security

- All student data, including document content, must be encrypted during transfer and storage.
- The system shall support authentication mechanisms to ensure that only authorized students can submit print jobs.

Maintainability

- The system should allow easy updates and maintenance with minimal downtime.
- The codebase should be modular to facilitate updates or the addition of new features, such as support for new printer models or payment systems.