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# **Software Requirements Specification**

**for**

## **A smart printing service for students at HCMUT**

**Version 1.0.0 approved**

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## Revision History

Name	Date	Reason For Changes	Version
Project 1	22/09/2024	Submit task 1.1 and 1.2	1.0.0

## **1. Task 1: Requirement elicitation (1.1, 1.2)**

### **1.1 Domain Context**

The Student Smart Printing Service (HCMUT\_SSPO) is a web-based and mobile-based printing service that has an objective to provide students with a convenient way to print their documents with printers located around the campuses. Each printer has its own ID, brand name, printer model, short description and the location. The system allows students to print their documents by uploading their files onto the system, they can choose the printer and edit the printing properties, the permitted file types are also limited and configured by SPSO. The system also logs the printing actions for students including student ID, printer ID, file name, printing start and end time, number of pages for each paper size. Besides, SPSO can view the printing history of all students and each student can view their history. For each semester, each student will be given the default number of A4-size pages and they can buy additional printing pages through some online payment systems, each student can only print when the number of printing pages does not exceed their balance and each A3 page is equal to 2 A4 pages. Moreover, SPSO can also manage the printer states such as add, enable and disable and SPSO can also change the default number of pages, the dates the system will give the default number of pages to all students as well as change the permitted file types. SPSO can view the report monthly and annually which is stored in the system. Finally, to use the system, all users have to be authenticated by HCMUT\_SSO service.

### **1.2 Stakeholders and Needs**

Students:

- Print a document by uploading a document file onto the system
- View printing log for a time period together with a summary of number of printed pages for each page size
- Buy some more using the feature buy printing page

Student printing service officer:

- Limit and configure the permitted file types
- View the printing history of all students or a student for a time period (date to date) and for all or some printers
- Manage the printers such as add/ enable/ disable a printer

- Manage other configurations of the system such as changing the default number of pages, the dates that the system will give the default number of pages to all students, the permitted file types accepted by the system.
- View the reports of the using of the printing system

### **1.3 Benefits of the System**

For Students:

#### **1. Convenient Document Printing:**

- Students can upload documents, choose printing properties, and print at any available campus printer from anywhere using a web or mobile app.
- Flexible options for specifying paper size, number of copies, double-sided printing, etc., offer personalized printing.

#### **2. Cost Management:**

- The system tracks each student's print quota (pages) per semester, ensuring they don't exceed their allowance.
- Students can purchase additional print pages as needed via an integrated online payment system like BKPay, making the process seamless.

#### **3. Transparency and Tracking:**

- Students can access their printing history, including the number of pages printed per size and logs of all previous printing actions.
- This helps students track their usage and ensure they stay within their budgeted print quota.

#### **4. Multiple Access Points:**

- The system is accessible via both web and mobile apps, providing students flexibility in managing their printing needs regardless of location.

#### **5. Security and Authentication:**

- Integration with the university's Single Sign-On (HCMUT\_SSO) ensures that only authorized users access the system, protecting student information and transactions.

For University Administration (SPSO):

1. Centralized Printer Management:

- The SPSO can add, enable, disable, or configure printers across campuses, making printer management streamlined and ensuring better resource allocation.

2. Configurable System Settings:

- The system allows customization of key parameters such as the default print allowance for students, acceptable file formats, and important operational dates, making the system adaptable to evolving needs.

3. Comprehensive Logging and Reporting:

- All student printing actions are logged, allowing the university to monitor usage and create accurate reports on the print system's performance, enabling better resource management.
- Monthly and yearly reports are generated automatically, providing insights into system usage without manual effort.

4. Enhanced Accountability:

- The detailed logs ensure transparency, allowing the SPSO to monitor student printing history and troubleshoot any discrepancies.
- This also helps in preventing misuse or overuse of resources.

5. Efficient Payment Integration:

- The integration with an online payment system (BKPay) simplifies the process of buying additional print pages, reducing administrative overhead for managing student printing balances.

## **1.4 Functional Requirements**

Students:

1. Students can print documents by uploading files, choosing printers and specifying printing properties.
2. Students can view their own printing log
3. Students can view their number of printed pages for each page size
4. Students can buy more pages to print

5. Students can view how many pages they have left in their balance

Student Printing Service Officer (SPSO):

1. SPSO can view printing history of student(s) or printer(s)
2. SPSO can add, remove, enable, disable a printer
3. SPSO can change the number of default pages given to student each period
4. SPSO can change the date students are given pages
5. SPSO can change the permitted file types
6. SPSO can view the report of the printing system

## **1.5 Non- Functional Requirements**

The printing system is implemented as a web-based app and a mobile app.

The system is available 24/7, except for maintenance periods.

The system is available for multiple concurrent users but must ensure that each printer serves only 1 user at a time.

The HCMUT\_SSO authentication service must authenticate all users before they use the system.

The payment method is made online, like BKPay