**National University of Singapore**
**School of Computing**

**IS2102 Requirements Analysis for Business IT Systems**
**Final Assessment (2025/26 Semester 1)**

# A.  Learning Objectives

This final assessment is meant to be an open-ended study to assess your analytical and design skills in enterprise system development. It aims to simulate the real-world requirement gathering, analysis, and design process. You will take on the role of a business analyst to come up with the necessary documentation, which will lead to the development of a real-world information system.

As the time given for this assessment is very short compared to a real-life requirement gathering, you will just focus on a few important pieces of documentation rather than everything about the system.

# B.  Opening Narrative

"Heartfelt Hands," a growing community-based non-profit organization, is facing significant operational challenges. Its mission to provide food bank services, run environmental clean-ups, and offer community workshops is being hampered by its reliance on manual and disconnected systems. Volunteer coordination is managed through complex spreadsheets and endless email chains, event sign-ups are done via third-party forms, and volunteer hours are tracked on paper logs. This disjointed approach leads to scheduling conflicts, inaccurate reporting, communication gaps, and a high administrative burden on the small team of coordinators, risking volunteer disengagement.

Heartfelt Hands wants to commission a new, all-in-one digital platform called **ImpactHub**. This platform will serve as the central coordination point for all volunteer activities, fundraising, and reporting. It will provide dedicated portals for volunteers, program coordinators, and the organization's administrators to streamline operations, boost engagement, and clearly demonstrate the organization's impact to stakeholders and grant providers.

The vision is to create a complete volunteer lifecycle management system, from initial sign-up and onboarding to scheduling, hour tracking, and long-term engagement, coupled with powerful administrative tools for program management and analytics.

Here is a high-level example of how the platform might work (you are free to design this differently):

1. A new volunteer discovers Heartfelt Hands online and registers on the ImpactHub volunteer portal, indicating their skills (e.g., "graphic design," "driver's license") and availability.
2. They browse a calendar of upcoming opportunities and sign up for a 4-hour shift at the weekly food pantry. The system automatically sends them a confirmation and a reminder email the day before.
3. The Program Coordinator for the food bank logs into their dashboard, sees the updated roster for the shift, and can communicate with all signed-up volunteers with a single message.
4. After the shift, the volunteer logs their 4 hours through the mobile app. The Program Coordinator verifies and approves the entry.
5. The Organization Administrator uses their dashboard to generate a quarterly report, showing total volunteer hours contributed across all programs, which is a key metric needed for an upcoming grant application.

# C. System Scope

You are free to decide what is the representation of the solution – likely a web platform with a complementary mobile app for volunteers for easy access to schedules and hour logging. The non-profit has identified three main types of users for this solution:

1. **Volunteers:** The lifeblood of the organization. They will use the platform to create and manage their profiles (including skills and availability), discover and sign up for volunteer opportunities (shifts, events), manage their personal schedule of commitments, log their completed hours, view their contribution history and impact statistics (e.g., total hours, events attended), and receive communications from the organization.

2. **Program Coordinators:** Staff or lead volunteers responsible for specific programs or events (e.g., the Food Pantry Manager, the Annual Gala Lead). They will use the platform to create and manage events, define volunteer roles and shifts needed for their programs, manage volunteer rosters, track attendance, approve logged hours for their specific programs, and communicate directly with their teams of volunteers.

3. **Organization Administrators:** The core management team responsible for the entire organization. They will have a high-level view of the platform to manage the complete volunteer database, oversee all programs and events, manage user roles and permissions, create and manage fundraising campaigns, track donations, generate comprehensive reports on organizational metrics (volunteer engagement, hours per program, fundraising goals), and manage all official communications.

You are free to decide the core mechanics of the architecture and features you think are necessary for maximizing volunteer engagement and administrative efficiency.

# D. Tasks

For this final assessment, you are to **create a single document (pdf format) with the documentation of 3 major tasks.** When coming up with the design of the system, you should incorporate the following:

- **Exhaustive** (do not miss out on any features)
- Try to incorporate **innovative** features and/or **innovative** workflow
- **Feasible**. The idea and system design should be something that can be translated into an actual system.
- **Flexible**. Think about different edge situations and try to address them.

This final assessment contributes 30% to the final course grade. The total mark for this assessment is 30 marks.

# D.1. Wireframes, Activity Diagrams, and Explanations

**Task 1 (10 marks):** Come up with (multiple) wireframes to visualize the system design and functionalities for the ImpactHub platform. Wireframes are likely to include (but not limited to):

- **Volunteer journey:** Dashboard (upcoming shifts, personal impact stats), Opportunity Finder (list/calendar/map view with filters), Event Detail & Sign-up screen, Hour Logging form.
- **Program Coordinator journey:** Program Dashboard (roster overview, urgent needs), Event Creation wizard, Shift Scheduling interface (e.g., a weekly grid), Hour Approval queue.
- **Admin journey:** Global Analytics Dashboard (volunteer hours, donation trends), Volunteer Database Management screen, Report Generator interface, Fundraising Campaign setup.

You should also include activity diagrams to explain major business processes, such as (but not limited to):

- A new volunteer signing up, finding, and registering for their first event.
- A Program Coordinator creating a new recurring event and defining its weekly volunteer shift requirements.
- An Administrator generating a year-end impact report for the board of directors.

You should also provide a comprehensive explanation of the following (at minimum):

- **The Operating Model:** How does the platform support the non-profit's mission? (Focus on managing volunteer resources, streamlining operations to reduce costs, and facilitating fundraising—e.g., donation forms, campaign tracking, corporate sponsorship tiers).
- **The Main Business Processes:** How does the system integrate volunteer recruitment and onboarding, event and shift scheduling, automated communications, hour tracking and verification, and donation management?
- **The Stakeholder Interactions:** How do volunteers find opportunities and track their contributions? How do coordinators manage their specific programs efficiently? How do administrators make strategic decisions and report on impact using the platform's data?

As far as possible, you should include the wireframes, activity diagrams, and explanations rather than just choose one representation.

## D.2. Use Case Diagrams

**Task 1 (10 marks):** Come up with <u>one or more use case diagram(s)</u> that contain <u>all</u> the use cases and actors. You should choose use case names that are indicative of the feature that you are envisioning. For features that might not be clearly expressed through the use case name, you can consider explaining the use cases further by providing a short write-up. Should you need to make any assumptions, you can note them down together with the use case diagrams in a separate table or section.

## D.3. Domain Model Class Diagram

**Task 3 (10 marks):** Come up with <u>a domain model class diagram</u> containing all the entities and their associations that are based on the above use cases/design. Should you need to make any assumptions, you can note them down together with the domain model case diagrams in a separate table or section.

## E. Submission

Create a single PDF document that contains your answers to the above three tasks. You are highly encouraged to use software to generate the diagrams, but handwritten diagrams are also accepted. However, you must ensure that the diagrams exported are of high quality. Diagrams that cannot be read clearly will be ignored in the marking. Please upload the softcopy of your document:

Deadline: **<u>28 Nov 2025 11:59 pm</u>**
Canvas Assignment: **<u>Final Assessment</u>**

**<u>The folder will auto-close by the deadline. If you are unable to complete your solutions before the deadline, you should submit what you have. We will NOT accept any submissions after the deadline.</u>**

**The University takes a serious view of plagiarism or any other form of academic dishonesty. This includes seeking assistance from third parties outside this module (e.g., classmates, friends, or industry practitioners). While you are allowed to use AI generation tools to assist in the assignment (brainstorming, research, etc), we discourage you from relying on AI extensively as the output is not always correct. In any case, if you use AI tools, you should declare it in your submission. Students caught cheating, copying work done by someone else to participate in any aspects of the assessment will be severely dealt with. You can be certain that you will be given a FAIL grade for this module. Please take this warning seriously.**