

**Lab Experiment: 05**  
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Submitted to-

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# ThesisHub Project – Scrum & Incremental Model Application

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## 1. Project Analysis (Common for Both Models)

**Project:** *ThesisHub – Online Thesis Supervisor Allocation & Management System*

### Problem

- Supervisor allocation is currently manual (group formation, preference collection, CGPA sorting, teacher capacity).
- Teachers can supervise max 2 groups.
- Students + teachers collaborate on thesis tasks, evaluation, and progress management manually.

### Goals

- Automate **group formation & supervisor allocation**.
- Ensure fairness (CGPA-based priority).
- Reduce chairman's workload.
- Provide digital tools for **task assignment, tracking, evaluation & reporting**.

### Stakeholders

- **Students** → form groups, select supervisors, perform thesis tasks.
  - **Teachers** → accept/decline groups, assign tasks, evaluate submissions.
  - **Chairman** → final approval of supervisor allocation.
  - **System Admin** → manages system setup, users, and reports.
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## 2. Project Design (Common for Both Models)

### Modules

1. **Authentication & Profiles** (students, teachers, chairman).
2. **Group Formation & Teacher Preference Submission.**
3. **Supervisor Allocation Algorithm** (CGPA priority + teacher availability).
4. **Task Assignment & Progress Tracking.**
5. **Evaluation & Marking.**
6. **Notifications & Reports.**

### Example Data Flow (Input → Processing → Output)

- **Input:** Student submits group + supervisor preferences.
- **Processing:** Sort groups by CGPA → allocate to teacher with available capacity.
- **Output:** Allocation record (group → supervisor mapping).

## 3. Scrum Model Application

### Scrum Steps Applied to ThesisHub

1. **Product Backlog** – List of all features:
  - Login system, group formation, supervisor preference, allocation, task management, evaluation, reports.
2. **Sprint Planning**
  - Sprint 1 → Authentication + Profiles
  - Sprint 2 → Group formation + Preferences
  - Sprint 3 → Supervisor Allocation
  - Sprint 4 → Task Assignment + Evaluation
  - Sprint 5 → Notifications + Reports
3. **Sprint Execution** – Team codes, tests, integrates features.
4. **Daily Scrum** – Team updates progress, blockers.
5. **Sprint Review** – Demo to stakeholders.
6. **Sprint Retrospective** – Improve next sprint.

### Scrum Input & Output of Each Phase

Phase	Input	Output
Product Backlog	Requirements list from stakeholders	Prioritized backlog
Sprint Planning	Product backlog	Sprint backlog (selected features)
Sprint Execution	Sprint backlog tasks	Working increment (feature done)
Daily Scrum	Progress updates	Updated task status + issues noted
Sprint Review	Completed increment	Approved/rejected increment
Sprint Retrospective	Team feedback	Process improvements + backlog updates

## 4. Incremental Model Application

### Steps in Incremental Model

1. Requirement Analysis → break project into increments.
2. Design → each increment has its own design.
3. Implementation → code increment.
4. Testing → validate increment.
5. Integration → merge increment into growing system.
6. Delivery → release partial but usable product.

### Increments for ThesisHub

- **Increment 1** → Login + Profile Management
- **Increment 2** → Group Formation + Supervisor Preferences
- **Increment 3** → Supervisor Allocation Algorithm
- **Increment 4** → Task Assignment + Progress Tracking
- **Increment 5** → Evaluation + Notifications + Reports

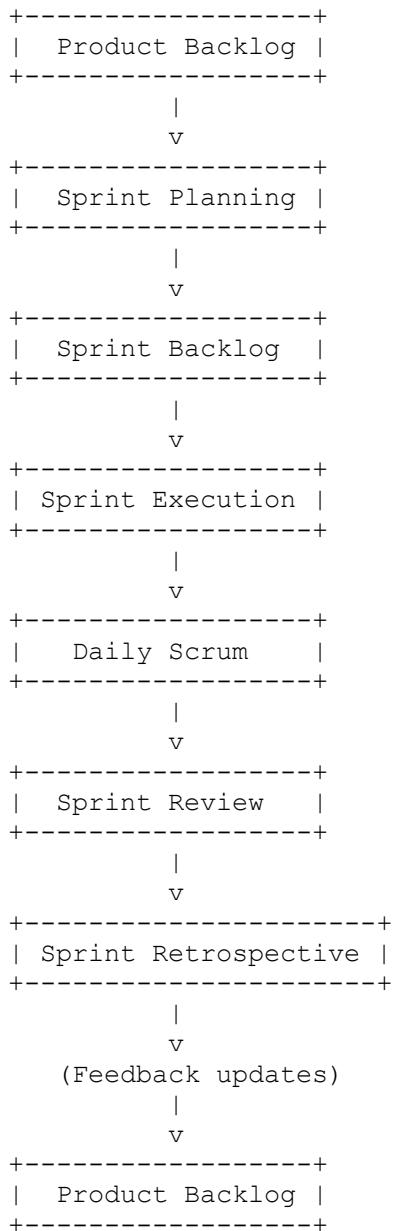
### Incremental Input & Output of Each Phase


Phase	Input	Output
Requirement Analysis	Problem statement, user needs	List of increments/modules
Design	Requirement for one increment	DB schema, UI flow, architecture
Implementation	Design documents	Developed increment (e.g., login)
Testing	Developed increment	Validated increment
Integration	Tested increment + existing system	Updated working system
Delivery	Integrated system	Partial/full usable system

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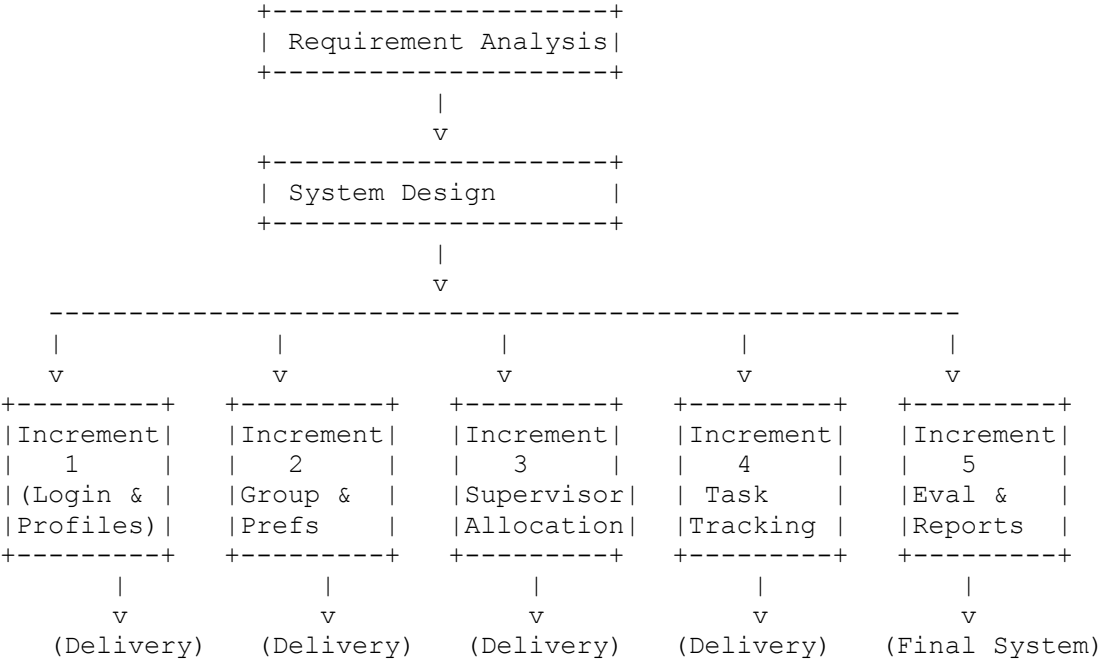
## 5. ASCII Diagrams (Use for Hand Sketch or Report)

### Scrum Cycle for ThesisHub



 **Explanation:** It's a continuous loop. Each cycle produces a working increment and updates the backlog.

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Final system = all increments integrated.

## 6. Hand-Sketching Guide



- **Scrum:** Draw a **circle/loop** with arrows between Product Backlog → Sprint Planning → Execution → Daily Scrum → Review → Retrospective → Backlog.
- **Incremental:** Draw **horizontal boxes** (Increment 1 → Increment 2 → Increment 3...) showing gradual growth of the system.



- **Complete project analysis & design**
- **Scrum application (phases, inputs/outputs, cycle)**
- **Incremental application (increments, phases, inputs/outputs)**
- **ASCII diagrams for hand sketching or report use**