MED-FI PROTOTYPE
HEURISTIC EVALUATION (GROUP)

Group 3

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1   PROTOTYPE DESCRIPTION

This project is a timetable planner website to help HUST students efficiently create, customize, and manage their class schedules using an intuitive interface with manual and automated scheduling features.

2   LIST OF VIOLATIONS

Tasks	No	
0	1	**H5 Error Prevention / Severity: 3 / Found by Phong** **Task:** Export & Auto-Generate Timetable **Description:** There is no warning or confirmation before users perform critical actions, such as exporting or auto-generating the timetable. **Rationale:** Lack of warnings may cause users to accidentally execute unintended actions, leading to confusion or loss of data. **Fix:** Add confirmation dialogs before exporting or auto-generating the timetable.
0	2	**H10 Help & Documentation / Severity: 2 / Found by Phong, Bao, Minh** **Task:** Interface Introduction **Description:** There is no visible help button or quick-start guide for first-time users. **Rationale:** Users unfamiliar with the interface might struggle to understand certain functionalities. **Fix:** Add a help section or interactive onboarding walkthrough.

0	3	**H4: Consistency & Standards / Severity: 2 / Found by Phong** **Task:** Export Page & Timetable Section **Description:** The beige and pastel color palette is not used consistently across screens, especially on the Export page and timetable section. **Rationale:** Inconsistent colors make the interface look unorganized and less professional. **Fix:** Use the same beige and pastel colors on all screens to keep the design consistent.
0	4	**H4 Consistency & Standards / Severity: 2 / Found by Minh** **Task:** Standardize Capitalization in Labels **Description:** The labels "Class Course Detail" and "Course Selected" are inconsistent in capitalization compared to other parts of the interface. **Rationale:** This inconsistency might confuse users and reduce the professional look of the interface. **Fix:** Standardize capitalization across all labels.
1	1	**H2 Match Between System & the Real World / Severity: 2 / Found by Phong** **Task:** Export Button **Description:** There is no clear guidance for exporting the timetable (only the Export icon is available, with no explanation about the file format or process). **Rationale:** Unfamiliar users may not know that Export creates a PDF file or what to do next. **Fix:** Add a brief description or step-by-step guidance next to the Export button.
1	2	**H8 Aesthetic & Minimalist Design / Severity: 1 / Found by Phong** **Task:** Export Interface **Description:** The Export interface appears slightly "empty," with excessive blank space. **Rationale:** Large empty spaces can make the interface feel unclear or inefficient. **Fix:** Adjust the layout to better utilize available space.
1	3	**H9 Error Recovery / Severity: 3 / Found by Phong** **Task:** Export Errors **Description:** If an error occurs during the export process (e.g., missing data, unsupported file type), there is no clear notification or recovery option. **Rationale:** Users might not understand why the export failed or how to fix it. **Fix:** Display error messages with specific instructions to resolve issues.
1	4	**H7 Flexibility & Efficiency of Use / Severity: 2 / Found by Phong** **Task:** Export Options **Description:** Users cannot choose additional export options, such as file types (e.g., image format).

		Rationale: Offering multiple file types enhances versatility and adapts to user needs. **Fix:** Allow users to select file types before exporting.
1	5	**H3 User Control & Freedom / Severity: 3 / Found by Phong** **Task:** Timetable Preview **Description:** When viewing the timetable preview, users don't know how to exit the preview mode (they must click on empty space outside the screen). **Rationale:** Lack of clear exit buttons can confuse users unfamiliar with the interaction. **Fix:** Add a visible "Close" button or a clearly labeled "Back" button within the preview window.
1	6	**H7 Flexibility & Efficiency of Use / Severity: 2 / Found by Phong** **Task:** Export Options Redundancy **Description:** There are three options—Download, Print, and Send to My Email—but the first two might overlap, especially if the user hasn't connected to a printer. **Rationale:** Redundancy in features can overwhelm users and clutter the interface. **Fix:** Combine the "Print" option with "Download" or disable the "Print" button if no printer is installed. Alternatively, provide dynamic messaging that shows "Download" is a prerequisite for printing.
1	7	**H8 Aesthetic & Minimalist Design / Severity: 1 / Found by Minh** **Task:** Reduce Distractions on Export Page **Description:** Decorative elements on the "Export" page (e.g., images, pins) can distract from the main functionality. **Rationale:** The extra visuals reduce focus on core elements and may impact usability. **Fix:** Reduce decorative elements and maintain a balance between aesthetics and usability.
1	8	**H5 Error Prevention / Severity: 3 / Found by Minh** **Task:** Validate Before Exporting Timetables **Description:** There is no validation or guidance when users try to export a timetable without selecting any courses. **Rationale:** Users might be confused when an empty timetable is exported, wasting time. **Fix:** Add a warning prompt if no courses are selected before exporting.
2	1	**H6 Recognition Rather than Recall / Severity: 3 / Found by Phong** **Task:** Map Locations **Description:** Locations on the map are not clearly labeled (e.g., some codes like D9-201 are hard to interpret). **Rationale:** Users must memorize or figure out codes themselves, making the task time-consuming and confusing. **Fix:** Add annotations or detailed information when users click on specific locations on the map.

2	2	**H7 Flexibility & Efficiency of Use / Severity: 2 / Found by Phong, Minh** **Task:** Map Navigation **Description:** The map lacks zoom in/out functionality for detailed viewing. **Rationale:** Users might struggle to locate specific locations on a large map. **Fix:** Add zooming and panning functionalities for better navigation.
2	3	**H6 Recognition Rather than Recall / Severity: 3 / Found by Phong** **Task:** Map Search Functionality **Description:** The campus map lacks a search function to quickly find specific buildings or classrooms. **Rationale:** Users must manually look for locations, which can be time-consuming. **Fix:** Add a search bar that highlights locations on the map when queried.
2	4	**H4 Consistency & Standards / Severity: 2 / Found by Bao** **Task:** Course Names, Building Codes, and Time Formats **Description:** Class names, building codes, and time formats sometimes appear with inconsistent abbreviations and styles. For example, some courses use abbreviations (e.g., "PH1016") while others are spelled out, and time formats vary between 24-hour and 12-hour notations. **Rationale:** Inconsistent labeling and formatting can confuse users and undermine the professional appearance of the tool. **Fix:** Standardize course naming conventions, building code representations, and time formats site-wide. For instance, always use 24-hour time notation, standard abbreviations, and consistent capitalization.
2	5	**H1 Visibility of System Status / Severity: 2 / Found by Bao** **Task:** Feedback When Selecting Courses or Buildings **Description:** After users select a course or building from the "Class Course Detail" panel, there is no immediate visual feedback or map highlight to show the building's location. **Rationale:** Users might be uncertain if their action was recognized, forcing them to manually search the map. **Fix:** When a class is selected, briefly highlight or zoom into the relevant building on the map and display a small tooltip with the building's name and code.
2	6	**H2 Match Between System & the Real World / Severity: 2 / Found by Bao** **Task:** Building Codes and Classroom Names **Description:** The building codes and classroom names (e.g., "D9-201") are not explained or translated into more meaningful labels. There is no legend or quick-reference guide. **Rationale:** Users unfamiliar with these codes might not understand how they map to real-world locations, making navigation difficult.

		Fix: Add a small legend or info icon that users can click to see a glossary of building codes, their full names, and possibly images or descriptions of their locations.
2	7	**H6 Recognition Rather Than Recall / Severity: 3 / Found by Minh** **Task:** Display Visual Routes on Map **Description:** Moving time estimates are displayed as numbers without showing a visual route. **Rationale:** Users must recall map locations and estimate their path, reducing usability. **Fix:** Display a highlighted route on the map for better understanding.
3	1	**H3 User Control & Freedom / Severity: 3 / Found by Phong** **Task:** Undo Timetable Generation **Description:** There is no option to undo or revert after automatically generating a timetable. **Rationale:** Users cannot edit or return to the previous state if the generated timetable is incorrect. **Fix:** Add an "Undo" button or allow users to edit the timetable after generation.
3	2	**H1 Visibility of System Status / Severity: 3 / Found by Phong, Minh** **Task:** Provide Feedback for Actions **Description:** There is no visible feedback when users select a course or generate a timetable. **Rationale:** Users need confirmation or progress indicators to know their actions are being processed. **Fix:** Add a loading spinner or confirmation message for feedback.
3	3	**H1 Visibility of System Status / Severity: 3 / Found by Phong, Bao** **Task:** File Upload Errors/Feedback **Description:** If a file upload fails due to format or size, the user only sees a generic error message (or none at all, as previously mentioned), but even when implemented, no link or instructions to a help section are provided. **Rationale:** Users might not know how to correct the issue if they do not understand the error message. **Fix:** Provide a link or embedded instructions in the error message. For example, "File upload failed. Please ensure it's an Excel file under 10MB. [View Supported Formats]."
3	4	**H2 Match Between System & the Real World / Severity: 3 / Found by Phong** **Task:** Absent Preferences in Timetable Generation **Description:** The interface does not explain how absent preferences (e.g., Monday Morning) affect timetable generation. **Rationale:** Users may not understand how the system prioritizes their preferences. **Fix:** Add an explanation (e.g., "Selecting preferences ensures no classes are scheduled during these times").
3	5	**H3 User Control & Freedom / Severity: 2 / Found by Bao**

		Task: Update Timetable After Preference Changes **Description:** After setting or changing "Preference Absent" times, users cannot easily update their timetable without completely regenerating it. **Rationale:** Users may want to quickly apply newly set preferences without starting from scratch, improving efficiency. **Fix:** Provide a clearly visible "Update Timetable" or "Re-Generate" button near the preference options so users can refresh their schedule based on recent changes without going through the entire process again.
3	6	**H8 Aesthetic & Minimalist Design / Severity: 1 / Found by Bao** **Task:** Uneven Spacing in Select File Section and Panels **Description:** The "Select File" section and some left-hand panels have large blank areas, making the interface feel uneven. Some icons (e.g., "Share," "Map") appear large and spaced out differently than others. Rationale: Uneven spacing and large unused areas can make the interface appear less polished and harder to scan. **Fix:** Adjust the layout grids to better allocate space. Use responsive design principles to arrange elements more compactly and reduce unnecessary whitespace.
3	7	**H7 Flexibility & Efficiency of Use / Severity: 2 / Found by Bao** **Task:** Limited Search Mechanisms **Description:** Advanced users have limited shortcuts or search mechanisms beyond the main "Course" search box. For instance, there's no way to quickly search by instructor or building. **Rationale:** Experienced users who know exactly what they want must still navigate through multiple steps, slowing them down. **Fix:** Add additional filters or an advanced search function. For example, a search bar that allows searching by instructor name, building code, or keyword, improving the efficiency of the scheduling process.
3	8	**H5 Error Prevention / Severity: 3 / Found by Bao** **Task:** Conflict Detection During Class Selection **Description:** When selecting multiple classes that overlap, there is no immediate warning or prevention mechanism before the timetable is generated. Users only realize conflicts after the timetable appears incorrect. **Rationale:** Users can inadvertently create conflicting schedules, leading to frustration and rework. **Fix**: Implement a real-time conflict detection system that alerts users when they select overlapping classes, allowing them to address conflicts before generating the final timetable.
3	9	**H7 Flexibility & Efficiency of Use / Severity: 2 / Found by Minh** **Task:** Add Time-Based Filters for Courses **Description:** Users cannot filter courses based on time preferences (e.g., morning or afternoon). **Rationale:** This limitation reduces efficiency for users with specific needs.

3	10	**H9 Recognize, Diagnose, & Recover from Errors / Severity: 4 / Found by Minh**
		Task: Improve Error Messages for Invalid Selections
		Description: If a user selects an invalid or unavailable course, no clear error message or guidance is provided.
		Rationale: Lack of feedback leaves users uncertain about what went wrong.
		Fix: Provide detailed error messages with specific instructions for resolution.

3   SUMMARY OF VIOLATIONS

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of System Status	0	0	1	2	0	**3**
H2: Match between System & Real World	0	0	2	1	0	**3**
H3: User Control & Freedom	0	0	1	2	0	**3**
H4: Consistency & Standards	0	0	3	0	0	**3**
H5: Error Prevention	0	0	0	3	0	**3**
H6: Recognition Rather Than Recall	0	0	0	3	0	**3**
H7: Flexibility & Efficiency of Use	0	0	5	0	0	**5**
H8: Aesthetic & Minimalist Design	0	3	0	0	0	**3**
H9: Recognize, Diagnose, & Recover from Errors	0	0	0	1	1	**2**
H10: Help & Documentation	0	0	1	0	0	**1**
Total Violations by Severity	**0**	**3**	**13**	**12**	**1**	**29**

4   EVALUATION STATISTICS

Severity / Evaluator	Bao	Minh	Phong
% Sev. 0	0%	0%	0%
% Sev. 1	33.33%	33.33%	33.33%
% Sev. 2	53.85%	30.77%	53.85%
% Sev. 3	8.33%	25%	66.67%
% Sev. 4	0%	100%	0%
Total (Sev. 3 & 4)	**7.69%**	**30.77%**	**61.54%**
Total (all severity levels)	**31.03%**	**31.03%**	**55.17%**

5　SUMMARY RECOMMENDATIONS

Usability analysis can bring to light several areas the system can be enhanced. First of all, the system will enhance error prevention through providing real-time conflict detection in class selection and warnings or validations against exporting timetables without courses chosen. Confirmation dialogs added for exporting or auto-generating timetables will reduce unwanted operations in critical operations. It provides for visibility of system status by introducing immediate feedback on user actions, whether that's some sort of loading spinner, confirmation message, or highlighting a selected building, displaying tooltips on a map to make sure that the user knows what they are doing.

Increasing options for multi-format export of files, advanced filtering in the search, and time-based filtering of courses will continue to allow the application to fit diverse user needs. Improved usability of maps with zooming, panning, and display of routes would greatly enhance navigation. Standardizing consistency and design: use a consistent design palette; standardize naming conventions; make interface elements align for professionalism and coherence. On the other hand, for recognition rather than recall, facilities such as searching on the map, elaborative annotations of the building codes, and visual display of route will reduce the cognitive overload.

Optimizing the layouts by minimizing unnecessary blank spaces and balancing aesthetic and minimalist design with decorative elements against core functionalities will provide a more focused interface. Help and documentation enhancements will be made by including an interactive onboarding guide or easy visibility of the help section in order to make the first-time user comfortable with navigating around the system. Last but not least, in error recovery, specific error messages with actionable advice will enable users to understand the issue and quickly recover from problems such as failed uploads or invalid selections. These recommendations are aimed at improving user satisfaction, efficiency, and overall system usability.