Task Management System User Manual

<u>Overview</u>

The Task Management System is a GUI application designed to manage and assign workers to created tasks based on their skill levels and time worked. The application allows you to:

1. Add and display workers
2. Add and prioritize tasks
3. Assign workers to tasks based on skill levels and availability

The system organizes tasks in a priority queue, sorts workers based on skill level and experience, and provides an easy-to-use interface for managing tasks & workers.

<u>Program Requirements</u>

- Python 3+
- Tkinter library for the GUI
- Heapq library for the priority queue functionality

<u>Interface</u>

The GUI contains the following sections:

1. Worker Management to add and view workers
2. Task Management to add and view tasks
3. Task Assignment to select tasks and automatically assign workers to them

<u>Worker Management</u>

This section allows you to add and view workers in the system with the following attributes.

- Worker ID
- Skill Level
- Time Worked

Steps to Add a Worker:

1. Fill in the worker's details (ID, skill level, and time worked).
2. Click Add Worker to add the worker to the system.
3. The worker will appear in the display area below the input fields, sorted by skill level and time worked.

Task Management

This section allows you to add new tasks to the system with the following attributes.

- Task Name
- Required Skill Level
- Priority
- Workers Needed to complete the task

Steps to Add a Task:

1. Fill in the task details (name, skill level, priority, workers needed).
2. Click Add Task to add the task to the task queue.
3. The task will be displayed in the task list below the input fields.

Task Assignment

This section allows you to assign workers to tasks based on the skill level required by the task and the worker's skill level and availability. Assignment is done automatically by doing the following:

1. Choose a task from the Select Task dropdown.
2. Click Assign Workers.
3. The system will then assign workers based on their skill level and time worked. If enough workers are available, their IDs will be displayed in the Assigned Workers area. Otherwise, an error message will be displayed letting the user something went wrong with the assignment.

Error Handling

If there is an error, such as invalid input or insufficient workers, an error window will appear with a brief message explaining the problem.

By following these instructions, you should be able to effectively use the Task Management System to add workers, tasks, and assign the appropriate workers to the tasks based on the available data.