import datetime

class ToDoList:

def \_\_init\_\_(self):

self.tasks = []

def add\_task(self, description, due\_date=None, priority=None):

task = {

'description': description,

'due\_date': due\_date,

'priority': priority,

'completed': False

}

self.tasks.append(task)

print(f'Task "{description}" added to the to-do list.')

def display\_tasks(self):

if not self.tasks:

print('No tasks in the to-do list.')

else:

print('\nTo-Do List:')

for i, task in enumerate(self.tasks, 1):

print(f"{i}. {task['description']}")

if task['due\_date']:

print(f" Due Date: {task['due\_date']}")

if task['priority']:

print(f" Priority: {task['priority']}")

print(f" Completed: {'Yes' if task['completed'] else 'No'}")

print('-' \* 30)

def mark\_completed(self, task\_index):

if 1 <= task\_index <= len(self.tasks):

self.tasks[task\_index - 1]['completed'] = True

print(f'Task "{self.tasks[task\_index - 1]["description"]}" marked as completed.')

else:

print('Invalid task index.')

def update\_task(self, task\_index, new\_description=None, new\_due\_date=None, new\_priority=None):

if 1 <= task\_index <= len(self.tasks):

task = self.tasks[task\_index - 1]

if new\_description:

task['description'] = new\_description

if new\_due\_date:

task['due\_date'] = new\_due\_date

if new\_priority:

task['priority'] = new\_priority

print('Task updated successfully.')

else:

print('Invalid task index.')

def remove\_task(self, task\_index):

if 1 <= task\_index <= len(self.tasks):

removed\_task = self.tasks.pop(task\_index - 1)

print(f'Task "{removed\_task["description"]}" removed from the to-do list.')

else:

print('Invalid task index.')

def main():

todo\_list = ToDoList()

while True:

print("\n===== To-Do List Application =====")

print("1. Add Task")

print("2. Display Tasks")

print("3. Mark Task as Completed")

print("4. Update Task")

print("5. Remove Task")

print("0. Exit")

choice = input("Enter your choice (0-5): ")

if choice == '0':

print("Exiting the application. Goodbye!")

break

elif choice == '1':

description = input("Enter task description: ")

due\_date = input("Enter due date (optional, format: YYYY-MM-DD): ")

priority = input("Enter priority (optional): ")

todo\_list.add\_task(description, due\_date, priority)

elif choice == '2':

todo\_list.display\_tasks()

elif choice == '3':

task\_index = int(input("Enter the index of the task to mark as completed: "))

todo\_list.mark\_completed(task\_index)

elif choice == '4':

task\_index = int(input("Enter the index of the task to update: "))

new\_description = input("Enter new description (press Enter to keep the current one): ")

new\_due\_date = input("Enter new due date (press Enter to keep the current one): ")

new\_priority = input("Enter new priority (press Enter to keep the current one): ")

todo\_list.update\_task(task\_index, new\_description, new\_due\_date, new\_priority)

elif choice == '5':

task\_index = int(input("Enter the index of the task to remove: "))

todo\_list.remove\_task(task\_index)

else:

print("Invalid choice. Please enter a number between 0 and 5.")

if \_\_name\_\_ == "\_\_main\_\_":

main()