

Assignment On

‘ADVANCED DATA STRUCTURES AND ALGORITHMS’ (Assignment-3)

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Submitted to:

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Question: Create an Undo-Redo System Using Two Stacks. Implement Push, Pop, and Display Operations.

Code :

```
class UndoRedoSystem:
```

```
    def __init__(self):
```

```
        self.undo_stack = []
```

```
        self.redo_stack = []
```

```
        # Push a new action    def
```

```
    push_action(self, action):
```

```
        self.undo_stack.append(action)    self.redo_stack.clear() # Clear
```

```
        redo history when a new action happens    print(f'Action added:
```

```
        {action}')
```

```
        # Undo operation    def
```

```
    undo(self):    if not
```

```
        self.undo_stack:
```

```
            print("Nothing to undo.")
```

```
    return
```

```
        action = self.undo_stack.pop()
        self.redo_stack.append(action)
print(f"Undo: {action}")
```

```
    # Redo operation    def
redo(self):            if not
self.redo_stack:
print("Nothing to redo.")
return
```

```
        action = self.redo_stack.pop()
self.undo_stack.append(action)
print(f'Redo: {action}')
```

```
    # Display both stacks
def display(self):
    print("\n--- Undo-Redo Status ---")
print("Undo Stack:", self.undo_stack)
print("Redo Stack:", self.redo_stack)    print("-
-----")
```

```
# -----
```

```
# Example Usage
```

```
# -----
```

```
system = UndoRedoSystem()
```

```
system.push_action("Type A")
system.push_action("Type B")
system.push_action("Type C")
```

system.display()

system.undo()

system.undo()

system.display()

system.redo()

system.display()

Output:

```
Users/HP/Desktop/M.TECH/ADSA/Assignment 3/task 3.py"
Action added: Type A
Action added: Type B
Action added: Type C

--- Undo-Redo Status ---
Undo Stack: ['Type A', 'Type B', 'Type C']
Redo Stack: []
-----
Undo: Type C
Undo: Type B

--- Undo-Redo Status ---
Undo Stack: ['Type A']
Redo Stack: ['Type C', 'Type B']
-----
Redo: Type B

--- Undo-Redo Status ---
Undo Stack: ['Type A', 'Type B']
Redo Stack: ['Type C']
```