

```
1 class ProjectCost:
2     def __init__(self):
3         self.tasks = {} # Dictionary to store
                           task names and their costs
4
5     def add_task(self, task_name,
6                 estimated_cost):
7         """Add a task and its estimated
8             cost"""
9         self.tasks[task_name] =
10             {'estimated_cost': estimated_cost,
11              'actual_cost': 0}
12
13     def set_actual_cost(self, task_name,
14                        actual_cost):
15         """Set the actual cost for a task"""
16         if task_name in self.tasks:
17             self
18                 .tasks[task_name]['actual_cost
19                     '] = actual_cost
20         else:
21             print(f"Task '{task_name}' does
22                 not exist.")
23
24     def get_estimated_total(self):
25         """Return the total estimated cost of
26             the project"""
27         total = sum(task['estimated_cost'] for
28                     task in self.tasks.values())
29         return total
30
31     def get_actual_total(self):
32         """Return the total actual cost of the
33             project"""
```

```
23         total = sum(task['actual_cost'] for
24             task in self.tasks.values())
25     return total
26
27     def compare_costs(self):
28         """Compare the estimated and actual
29             costs"""
30         estimated = self.get_estimated_total()
31         actual = self.get_actual_total()
32         difference = actual - estimated
33         return estimated, actual, difference
34
35     def generate_report(self):
36         """Generate a simple budget analysis
37             report"""
38         estimated_total, actual_total,
39             difference = self.compare_costs()
40         print("Project Budget Report")
41         print(f"-----")
42         print(f"Total Estimated Cost:
43             ${estimated_total}")
44         print(f"Total Actual Cost:
45             ${actual_total}")
46         print(f"Difference: ${difference}")
```

```
41         print(f"-----")
42     for task, costs in self.tasks.items():
43         print(f"Task: {task}")
44         print(f"    Estimated Cost:
45             ${costs['estimated_cost']}")
46         print(f"    Actual Cost:
47             ${costs['actual_cost']}")
48         print(f"-----")
49
50 # Example usage
51 project = ProjectCost()
52
53 # Add tasks with estimated costs
54 project.add_task("Design", 5000)
55 project.add_task("Development", 15000)
56 project.add_task("Testing", 3000)
57
58 # Set actual costs (after some progress in the
59     project)
60 project.set_actual_cost("Design", 4500)
61 project.set_actual_cost("Development", 16000)
62 project.set_actual_cost("Testing", 2800)
63
64 # Generate a report
65 project.generate_report()
```

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## Project Budget Report

-----  
Total Estimated Cost: \$23000

Total Actual Cost: \$23300

Difference: \$300  
-----

Task: Design

Estimated Cost: \$5000

Actual Cost: \$4500  
-----

Task: Development

Estimated Cost: \$15000

Actual Cost: \$16000  
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Task: Testing

Estimated Cost: \$3000

Actual Cost: \$2800