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**PROJECT NAME: COST ESTIMATION & BUDGET
ANALYSIS**

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Title: COST ESTIMATION AND BUDGET ANALYSIS

Submitted by: Gowtham S

Phase 5: Final Phase Project Demonstration & Documentation

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1. Abstract

The project aims to simplify and automate **Cost estimation and budget analysis** using an interactive interface. It provides businesses and project managers with a streamlined tool for tracking expenses, comparing estimated vs actual costs, and visualizing financial performance. Built using Python and Streamlit, the system enables real-time input and analysis, ensuring informed decision-making.

2. Project Demonstration

Overview:

The tool allows users to:

- Input estimated costs by category
- Record actual expenses
- Automatically compute differences
- Visualize budget deviations using graphs

Demonstration Details:

Using the Streamlit dashboard:

- Users select expense categories (e.g., Raw Materials, Labor, Marketing)
- Enter estimated and actual cost values
- The tool generates real-time bar charts and tables for analysis

Outcome:

A fully working demo that dynamically updates cost insights with clear visual representation.

3. Project Documentation

Overview:

The tool consists of:

- Front-end: Streamlit dashboard
- Back-end: Python with Pandas and Matplotlib
- Output: Tables, bar charts, summaries

Documentation Sections:

- System Architecture
- UI Flow Design
- Budget Computation Logic

- Visualization Techniques

Outcome:

Clear, well-structured documentation supporting real-time analytics for cost and budget control.

4. Feedback and Final Adjustments

Overview:

User testing was conducted with a sample data set to validate:

- Accuracy of cost computations
- Usability of the dashboard
- Clarity of visualizations

STEPS:

- Collected test feedback
- Fixed UI alignment issues
- Enhanced chart clarity
- Added cost summary section

OUTCOME:

Refined version with improved UX and accurate performance.

5. Final Project Report Submission

Overview:

The final report contains all required details including implementation, visuals, and results.

Report Sections:

1. **Executive Summary**
2. **Phase-wise Progress**

3. **Challenges Faced:** Graph rendering limits, design responsiveness

4. **Final Output:** Working dashboard with real-time analysis

OUTCOME:

Ready-to-submit structured documentation for Naan Mudhalvan.

6. Project Handover and Future Works

Overview:

The project is scalable to include:

- Multi-user support
- Export to Excel/CSV
- Monthly reporting

Handover Details:

- Codebase on GitHub
- User Manual
- Deployment Instructions

OUTCOME:

Ready for deployment in business environments with scope for future enhancements.

7. Python Code & Streamlit Dashboard

```
# Sample Streamlit Cost Estimation Tool
```

```
import streamlit as st
```

```
import pandas as pd
```

```
import matplotlib.pyplot as plt
```

```
st.title("Cost Estimation and Budget Analysis")
```

```
categories = st.text_area("Enter categories (comma-separated):",  
"Raw Materials, Labor, Overheads, Marketing, Contingency")
```

```
category_list = [x.strip() for x in categories.split(',')]
```

```
estimated = []
```

```
actual = []
```

```
st.header("Enter Estimated and Actual Costs:")
```

```
for cat in category_list:
```

```
    est = st.number_input(f"Estimated cost for {cat}:",  
min_value=0)
```

```
    act = st.number_input(f"Actual cost for {cat}:", min_value=0)
```

```
    estimated.append(est)
```

```
    actual.append(act)
```

```
df = pd.DataFrame({  
    'Category': category_list,  
    'Estimated Cost': estimated,  
    'Actual Cost': actual  
})
```

```
st.subheader("Cost Comparison Table")
```

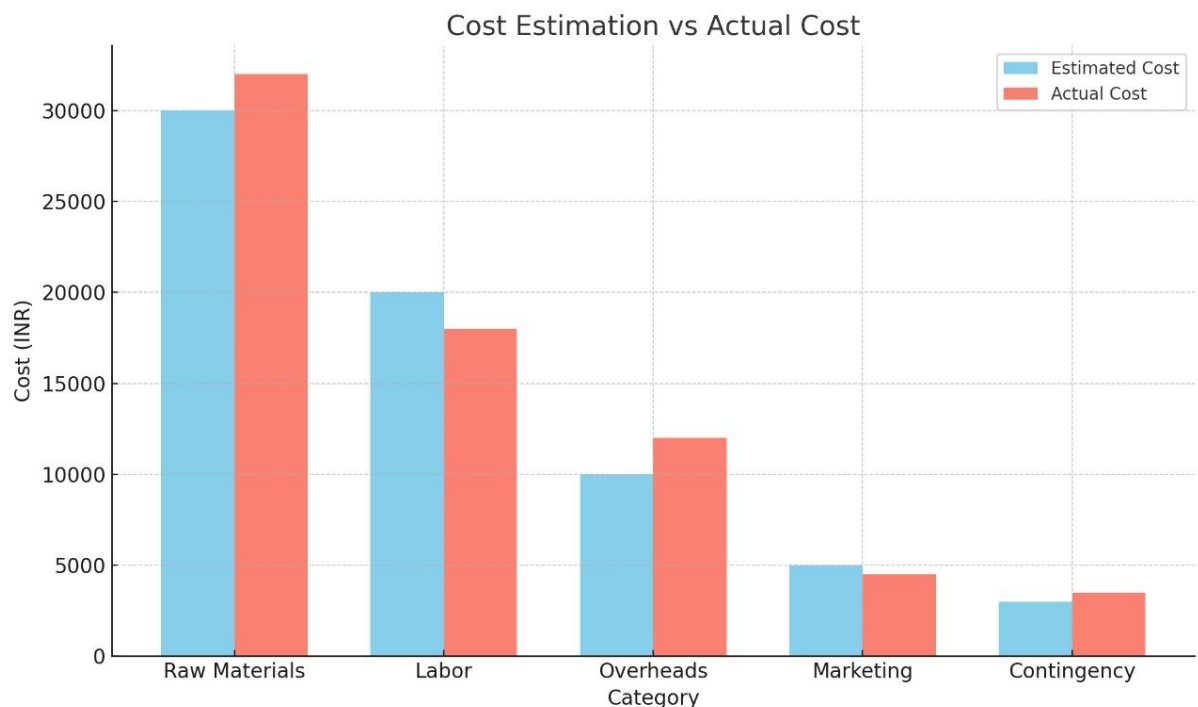
```
st.dataframe(df)
```

```

# Bar chart
st.subheader("Cost Comparison Chart")
fig, ax = plt.subplots()
bar_width = 0.35
index = range(len(category_list))
ax.bar(index, estimated, bar_width, label='Estimated',
color='skyblue')
ax.bar([i + bar_width for i in index], actual, bar_width,
label='Actual', color='salmon')
ax.set_xticks([i + bar_width / 2 for i in index])
ax.set_xticklabels(category_list, rotation=45)
ax.legend()
st.pyplot(fig)

```

8. Output and Conclusion



The **Cost Estimation and Budget Analysis** project successfully delivers a streamlined, interactive tool for tracking and comparing estimated versus actual project expenses. Built using Python and Streamlit, it offers a user-friendly interface for entering cost data, with automatic generation of tables and graphs that highlight budget deviations. This empowers users—whether students, project managers, or small business owners—to make informed financial decisions quickly and clearly.

Throughout the project, key development phases such as ideation, implementation, testing, and refinement were completed effectively. The result is a reliable, real-time budgeting tool that balances simplicity with functionality. With further enhancements like data export, multi-user support, and automated data integration, this tool has strong potential for broader adoption in real-world applications.
