HW - Class Case Study Cost Estimate

Start Assignment

- Due Nov 22 by 11:59pm
- Points 20
- Submitting a file upload

HW - Class Case Study Cost Estimate

NOTE: Note for all future case study related homework, focus should be on phase 1 as phase 0 was pretty much a given in terms of a timeline, the cost, and you and management had approved it. For phase 1, you should consider it more open as it will require more effort than Phase 0 and probably require more expertise for example a database programmer. Also assume you have access to a group of engineers that you can utilize for Phase 1, so you can include how many resources of which type of engineer you might need and provide schedule, cost, risks, etc. The key here is what is your ask of management for your derived project plan (cost, schedule, scope, risks, etc).

(15 pts) In this assignment, you will focus on the cost estimation for Phase 1 of the Class Case Study ("Excel Property Management") project. Previously, costs were calculated using Excel or VBA macros; now, you are meant to utilize Python scripts and Python libraries to perform the required calculations and analysis. Using your existing or reworked Work Breakdown Structure (WBS) and Gantt charts, provide a detailed cost estimate covering all essential elements such as:

- **WBS Task Costs:**
  - List each Work Breakdown Structure (WBS) task individually.
  - Provide estimated total hours of effort for each task.
  - Assume and document reasonable hourly rates for each resource type involved.
  - Calculate the total cost for each task (total hours × hourly rate).
- **Hardware Costs:**
  - Specify types of hardware, quantity, unit costs, and total costs.
  - Include costs for asset purchases or cloud service usage, clearly defined and calculated via your code.
- **Software Costs:**

  - Identify Commercial Off-the-Shelf (COTS) software and associated fees.
  - Include costs for software licenses or subscriptions directly involved in product development.
- **Tool Fees:**
  - Include fees for development tools, platforms, or IDEs if applicable.
- **Resource Costs:**
  - Clearly identify engineering resources (e.g., Front-End Developers, Database Programmers, QA Testers).
  - Estimate hourly wages and total hours of effort per resource type.
  - Write logic in code to compute total resource costs.
- **Total Project Development Cost:** Sum all above costs using Python to provide a clear and accurate total development cost (up to first deployment).
- **Cost Justification:** Clearly document the methodology and assumptions used for estimating each cost component within your Python script/notebook.

(5 pts) Once deployed, the web-based solution will incur ongoing monthly costs. Using your python script, estimate and clearly document:

- Costs for website hosting (e.g., cloud hosting fees).
- Maintenance and technical support costs.
- Monthly costs for software licenses/subscriptions.
- Any other recurring monthly expenditures necessary for operation.

Clearly describe the assumptions and methodology used to determine each recurring monthly cost within your Python script.

Submission Requirements

Submit a .zip file containing:

- Your Python script (cost_estimate.py) clearly showing all calculations and methodology.
- Two generated CSV files:
  - Development_Costs.csv: containing detailed development cost breakdown.
  - Recurring_Costs.csv: containing detailed monthly recurring cost breakdown.
- Include comments in your Python code/notebook clearly explaining your logic, assumptions, and steps.

- Screenshot(s) of your Python script output clearly displaying total calculated costs/ generated csv.

HW Cost Rubric (1)

Criteria	Ratings		Pts
Detailed WBS Task Costing (Python CSV import and Calculation)	**5 pts** **Full Marks** All WBS tasks clearly imported from CSV, costs calculated using Python (task effort hours multiplied by hourly rates)	**3 pts** **Novice** WBS tasks imported, partial or minor inaccuracies in cost calculations	5 pts
HW/SW Costs (Detailed Analysis & Python-Based Calculation)	**4 pts** **Full Marks** Clearly identifies HW/SW resources, cost/unit, total costs calculated accurately using Python	**2 pts** **Novice** HW/SW identified but calculation inaccuracies exist or unclear methodology	4 pts
Resource Costs (Engineering Resources) (Python Calculations & Justification)	**3 pts** **Full Marks** Clearly lists each type of engineering resource, hourly rates, total hours, accurate cost calculations in Python with clear methodology	**1.5 pts** **Novice** Some resources and costs listed, calculations incomplete or minor inaccuracies	3 pts
Total Project Development Cost (Inclusive of Testing, Python calculations)	**3 pts** **Full Marks** Total project cost clearly calculated (including testing) using Python and summarized clearly with no errors	**1.5 pts** **Novice** Project cost presented with minor calculation errors	3 pts
Monthly Recurring Maintenance Costs (Python Analysis & Methodology Explanation)	**5 pts** **Full Marks** Clearly calculated monthly recurring maintenance costs, detailed assumptions/methodology explained, Python calculations shown clearly	**3 pts** **Novice** Recurring costs presented but limited explanation or unclear methodology	5 pts
			Total Points: 20