**Project Postmortem Template**

*As a Boilermaker pursuing academic excellence, we pledge to be honest and true in all that we do. Accountable together – We are Purdue.*

*(On group submissions, have each team member type their name).*

Type or sign your names: ­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write today’s date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# **Assignment Goal**

In this assignment, you will provide a *postmortem* on your Project 2 implementation.

A postmortem is a reflective document that captures the successes, failures, and lessons learned from an engineering effort. Engineering is never a one-time effort; teams deliver a system and then continue to work together on the next system. Remember, software engineering is “programming integrated over time”.

One key to an effective postmortem is making it *honest*. Reflect on your team’s experiences. Report the data. Be clear about the facts.

# **Relevant Course Outcomes**

A student who successfully completes this assignment will have demonstrated the ability to

* *Outcome ii*: The ability to conduct key elements of the software engineering process.
* *Outcome iii*: Develop an understanding of the social aspects of software engineering… including…communication [and] teamwork.

# **Resources**

**Perspectives on conducting a postmortem**

* Software Engineering at Google textbook
  + Chapter 2: How to work well on teams
  + p. 87 (box “Failure Is an Option”)
* [Postmortems at Google](https://sre.google/sre-book/postmortem-culture/)
* [Postmortems at Amazon](https://medium.com/the-cloud-architect/incident-postmortem-template-7b0e0a04f7a8)

**Examples of real postmortems**

* Microsoft
  + [This website](https://devblogs.microsoft.com/devopsservice/) has some of Microsoft’s postmortems, including e.g. [this one](https://devblogs.microsoft.com/devopsservice/?p=17665).
* Cloudflare
  + [An outage impacting thousands of their customers](https://blog.cloudflare.com/details-of-the-cloudflare-outage-on-july-2-2019/)
* Google
  + [A specific example following their philosophy above](https://sre.google/workbook/postmortem-culture/)

# **Assignment**

You will critique several aspects of your work on Project 2.

## Rate your performance

Look at the grading breakdown in the project spec.

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| *Approximately what grade do you expect to receive for Project 2 overall?*  *Approximately what grade do you expect to receive on your implementation?* |

The next sections will help you conduct a root cause analysis, thinking through how you got to this point (whether good or bad!).

## Critiquing your plan

*At each point, you should indicate things you would* ***do again*** *or* ***change for next time****.*

In what ways was your plan (design, timeline, etc.) helpful? (At least 2 examples with explanation)

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| **Example 1**:  **Example 2**: |

In what ways was your plan unhelpful or inadequate? (At least 2 examples with explanation)

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| **Example 1**:  **Example 2:** |

Were you over-ambitious in any aspect of your design? Did you reduce the scope of the design as a result?

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In Project 2, you defined the initial project scope yourselves. If you reduced scope partway through, discuss what factor(s) led you to do so.

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## Critiquing your process

At each point, you should indicate things you would **keep** or ***change for next time***.

* Did your team follow your team contract? If not, what aspect broke down?

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* Did you meet your milestone deadlines?

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* Did you track your progress well?

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* In what ways did you deviate from your plan? (At least 2 examples with explanation)

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| **Example 1:**  **Example 2:** |

* To what extent did your design inform your implementation?

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* Meetings: What aspects of your meetings were effective or ineffective? Did you apply anything suggested by the guest speaker Greg Wilson?

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* Describe a disagreement or conflict your team experienced and how you addressed it. This might be technical or personal.

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* Discuss your experience working with the other team’s Project 1 implementation. Cover topics like: Did you effectively conduct a component assessment test? Did you discover problems at the last minute (and if so, why didn’t you catch them earlier)?

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* Project 2 involved the use of a deployment technologies (GitHub Actions, GCP) that were new to most students. Did you share knowledge effectively across your team? What mechanisms did you use to support knowledge sharing and troubleshooting? How could you improve in knowledge sharing?

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## Critiquing your product

### Weaknesses

Identify and discuss three weaknesses of your product (this includes all aspects of the product, including testing, CI/CD, API design, system architecture, implementation decisions, and documentation).

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| **Weakness 1**  *What is the weakness?*  *Explain the presence of the weakness in your product. Why is it there?*  *How would you mitigate or eliminate the weakness?* |

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| **Weakness 2**  *What is the weakness?*  *Explain the presence of the weakness in your product. Why is it there?*  *How would you mitigate or eliminate the weakness?* |

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| **Weakness 3**  *What is the weakness?*  *Explain the presence of the weakness in your product. Why is it there?*  *How would you mitigate or eliminate the weakness?* |

### Security

Describe your experience conducting the STRIDE analysis. Were there difficulties? Did you discover any security issues as a result of your analysis?

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Under what threat models is your system secure? (What assumptions do you have about, e.g., ACME Corporation’s processes, GCP, etc. in order to make this guarantee?)

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### Maintainability

Discuss how well you documented your system and its design. For example:

* Do you think a new member could join your team easily?
* Could another team build effectively on your work?
* Are your system models in sync with your implementation? To what extent would a new member have to study the code and induce a model for themselves?

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## Individual contributions

To help Prof. Davis assess whether the project was too hard or too easy, please review your milestone documents and populate this table.

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| --- | --- | --- |
| **Team member** | **Week #** | **Hours spent** |
| **A** | 1 |  |
|  | 2 |  |
|  | 3 |  |
|  | 4 |  |
|  | … |  |
|  | ***Total:*** |  |
|  |  |  |
| **B** | 1 |  |
|  | 2 |  |
|  | 3 |  |
|  | 4 |  |
|  | … |  |
|  |  |  |
| (and so on) |  |  |

## Summary

Review the postmortem you’ve conducted. Capture **two lessons learned** that you want to share with the class.

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| **Lesson 1 (about some aspect of software design/implementation/validation)**:  <SUCCINCT STATEMENT>, because <SUCCINCT EXPLANATION>.  **Lesson 2 (about teamwork)**:  <SUCCINCT STATEMENT>, because <SUCCINCT EXPLANATION>. |

## Learning from Project 1

Most of you were on the same team for Project 1 and Project 2. In your Project 1 postmortem, you critiqued your plan, process, and product; you indicated several lessons that you learned; and you made recommendations for next time.

Review your Project 1 postmortem. In what ways did you learn from your experience in Project 1? In what ways did you repeat your mistakes? Discuss.

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| ***In some areas, we learned.***  <discuss>  ***In other ways, we made the same mistakes.***  <discuss> |

# Grading

This assignment is worth 15% of the overall Project grade. Treat it with the care it deserves.