Tech Spec Template - Project Name

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| **💡Note**  **Read the following docs to get expert on different topics -**   * [**Format and Structure Your Doc**](https://docs.google.com/document/d/1gBvWjBWnrEfagqWRlVY-cZayU6PAfdZb64r4Ag-7cNA/edit#heading=h.xfi1xtal53lb) * [**How to document code in Google Doc**](https://docs.google.com/document/d/1OX-DNU7hNkB3f2cSZ9o4qvgVbogVMokJaT3B7uIitl4/edit) * [**API Design Guide**](https://docs.google.com/document/d/1vufulBF4-LYNJCixZTKtiwy4UZcqO3zcE9-hNl0iwY4/edit) * [**Put Google Doc in Presentation Mode**](https://docs.google.com/document/d/1TwAAJiKzEfFe68uZi191U5xkjI-IZq6FBMewfBZHqTs/edit#heading=h.7j8minvj5w8o)   **Full Reading List -** [**Link**](https://docs.google.com/spreadsheets/d/1yoOcGAede7AwWwnqQ59yIl0F4LCUDqxqe5a75IgtbPE/edit#gid=0) |
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# 1. Problem Statement

Since the problem would already be deeply analyzed on Product end, just a brief (4-5 points) on the problem being solved by the above feature should be covered in this section. But an engineer knowing what problem is exactly being targeted, usually helps in coming up with the best approaches to solve.

Tenets

Here are the tenets unless you know better

Security is our top priority:

* We will strive to use existing Authentication and Authorization mechanisms/libraries
* We will not store credentials in the code
* We handle customer data carefully, e.g. We will not log PII data
* We will instrument

# 2. Introduction & Scope

This section should contain a high-level introduction of the feature, clearly indicating the scope of the feature and a summary of the executive/project that the feature is coming from in the PR format

## 2.1. Relevant Resources

Link to Product Spec - [Link](https://docs.google.com/document/d/1DfRg79nZ7yPKWVOJ-Ynp0oYdWnWlM4xkyVOgVT6DMt0/edit#)

Link to Figma Design - Link

Link/Description around functional requirements

# 3. Out of Scope

Clearly call out the features/enhancements which would be out of scope as far as this document/goal is concerned. Mention them as either a future scope to the feature, but point it out upfront to keep expectations clear.

# 4. Futuristic Scope

You are expected to be like Christopher Nolan and see how this can evolve, in case you can :). If you can’t ignore this section and move on. The above was a joke. Please use wisdom as appropriate.

# 5. Assumptions, Goals & Non-Goals

## 5.1. Assumptions

Add what assumptions you’re making while coming up with the goals and non-goals

## 5.2. Goals

Add bulleted goals specific to the feature.

## 5.3. Non-Goals

Call out clearly the non-goals of the feature as well.  
For instance, if the feature is important, we would be releasing it irrespective of the costs being incurred. Hence, it's not a goal but however, it's not out of scope.

# 6. Current Architecture / Current HLD

Add the current flow/architecture of the system.

# 7. Final Approach - Specifications

This section will highlight which approach is being picked up and why

## 7.1. List of Possible Solutions

Add only the links of all the other approaches and detail out only the final approach.

The other approaches should elaborate on each of the below:

* Describes what will be changes being made to the codebase
* Diagrammatic representation of the process flow describing the stages
* Total effort estimation in days/sprints/months to be put here.
* Enter bulleted pros here for the approach
* Enter bulleted cons here for the approach

This section should detail out all possible approaches to resolve the problem statement defined above - including any diagrammatic, flowchart representations that might be required to explain the problem statement.

Each approach should should conclude with a **pros and cons** section for that particular approach

## 7.2. Assumptions

Add only if applicable, mention any assumptions you’ve made in the proposed approach.. Some examples:

1. The SLA for this product/application should be bound by X
2. We need a specific kind of hardware for running on the approaches(e.g. Need GPU machines for running ML experiments)
3. Do we specifically need a tool/information etc as a mandate for running this product? For instance, i should have requisite analytical information for us to make judicious implementation.
4. The requisite cost for running this application is at the minimum X dollars.
5. I cannot run this project without asana as a tool (bad example, but read the subtext)
6. This solution will trade off around efficiency vs cost vs latency as this is a 0-1 product
7. This explicitly is meant to scale for a minimum of 10k tps

## 7.3. Possibility of Open Sourcing

Call out the possibility and process around open sourcing the feature and maintaining it.

## 7.4. Possibility on Patent

Check if the feature qualifies for being patented.

## 7.5. Data model/Schema Changes

Add only if applicable

* Schema definitions
* New data models
* Modified data models
* Data validation methods
* Data Sizing Considerations
* Data Archival/Partitioning Strategy
* Add any more relevant links as required.

## 7.6. Business Logic Changes

Add only if applicable

* API changes
* Pseudocode
* Flowcharts
* Error states
* Failure scenarios
* Conditions that lead to errors and failures
* Limitations

## 7.7. Miscellaneous Questions

Answer questions if only relevant, add more questions as required

* What are the limitations of the solution?
* How will it recover in the event of a failure?
* How will it cope with future requirements?

# 8. Non Functional Requirements (NFRs)

Talk about each as applicable and call out the expectations/risks from the feature.

## 8.1. Scalability

## 8.2. Availability

## 8.3. Security

## 8.4. Compliance

## 8.5. Reliability

## 8.6. Infra Cost

# 9. Feature Dependencies & SLAs

Callout upstream and downstream applications that will get impacted

## 9.1. Upstream Dependencies

Add SLO/SLA dashboard links for existing services.

| Sr. No. | Service | Impact | SLA (if applicable) | POC for service |
| --- | --- | --- | --- | --- |
| 1 | abc |  |  | Owner/expert on abc |

## 9.2. Downstream Dependencies

| Sr. No. | Service | Impact | SLA (if applicable) | POC for service |
| --- | --- | --- | --- | --- |
| 1 | xyz |  | TBD | [Aditi Maheshwari](mailto:aditi.maheshwari@razorpay.com) |

# 10. Testing Plan

Lay down test scenarios

## 10.1. Test Cases

(UTs, ITs, regression suites, UI/UX tests and manual test efforts)

Capturing the results with upstream and downstream applications and validating the results against expected outputs

Add links here only.

## 10.2. UAT Testing

Capturing User acceptance test results, validating against genuine data

## 10.3. Performance/Load testing

Capturing any load testing that we wish to perform

# 11. Go-live plan

## 11.1. Production Rollout and Ramp plan

Add what will be done to progressively roll out the feature in production. You can take cues from product spec also to see how we can support the ramp up whether in a phased manner, in one shot or through certain gating criteria as needed.

## 11.2. Backward Compatibility

## 11.3. Rollback plan

Add what will be done in case of an immediate rollback requirement and how it will be implemented.

# 12. Monitoring & Logging

Jot down all metrics that need to be monitored for the changes being made

# 13. Milestones & Timelines

Breakdown the task into major milestone, divide the milestones to further task and subtask, mentioning owners, JIRA/Asana link, due date, reviewer, status

Creating a tabular sheet in excel is preferable here for better understanding

Please paste the link for the tracker with details similar to below here

| Sr. No. | Title | Owner | JIRA/Asana link | Due Date | Reviewer | Status |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Milestone 1 (M1) | [Aditi Maheshwari](mailto:aditi.maheshwari@razorpay.com) |  |  |  |  |
| 2 | Milestone 2 (M1) |  |  |  |  |  |

# 14. Glossary

This section describes all the terms and abbreviations being used specifically in the context of the above feature and heavily being used in this document.

# 15. Appendix

This section provides the links to all other important documents such as Project Milestone trackers, PRDs (created by Product team), Concept notes, JIRA/Asana project links and any other relevant links.

* [Razorpay Product: Concept Note Template <June 2022>](https://docs.google.com/document/d/1DfRg79nZ7yPKWVOJ-Ynp0oYdWnWlM4xkyVOgVT6DMt0/edit#heading=h.o1uri73rsz9)
* <https://stackoverflow.blog/2020/04/06/a-practical-guide-to-writing-technical-specs/>
* <https://www.thecloudtutorial.com/technical-specification-document/>

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