OpinionRoute
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Web Application Architecture Analysis

Proposal for:
OpinionRoute
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Context Discovery

The initial direction of the project will be determined by the quantity and quality of the discovery conversations. During project discovery it's important to understand the technical constraints and the history of the organization's IT function. We will interview stakeholders in order to gain understanding of how the internal technology decision making process has led to the current state of web product engineering maturity. This maturity will be measured on several scales, including cost, scalability, flexibility, resilience and risk preparedness. Mapping out key customer service journeys and critical internal business process enables us to see the big picture and understand the right balance of priorities for your business. We will also take a look at your software development lifecycle maturity, which includes how you commit code, how you handle defects and bug tracking, how you organize QA and testing, and how you manage releases within the organization, with an eye towards adding automation and resilience.

Code Analysis

The substance of any web application is the code that is written, compiled, and executed in order to enable business logic. Each language and tech stack has it's own particular sets of best practices. There are subjective coding styles and guidelines that can be followed. A discipline software engineering organization sets standards for coding style and enforces them through code reviews and automated linters. We will ensure that those standards exist and that following them is easy for developers. If those automated linters and static code analysis tools are not being used currently then we will make recommendations on specific products and services to integrate into your developer's environments.

Code is more than just syntax, it is also important that we analyze complexity and organization. We will look for proper usage of high-level engineering concepts like separation of concerns, dependency injection, inversion of control, and various data access patterns. We will also document any places that the application code contains uncessary redundancies and identify opportunities for refactoring to make future maintenance easier.

Another aspect of the software application code that we will look at is security best practices, following the OWASP guidelines we will examine the source code for less than completely secure configurations and make recommendations for how future security vulnerabilities can be avoided. In addition if any third party libraries are being used we will check for security vulnerabilities and recommend updates to dependencies that are out of date or that are at risk of going out of maintenance. In addition when we analyze dependencies we will check for any non-compliant open source licenses that could create legal risks in the future.

Code analysis will also look at the presence or lack of unit tests and integration tests. Recommendations will be made for testing best practices and continuous monitoring of test coverage percentages. Establishing a minimum test coverage requirement and having that checked automatically during the build process will enable you to make changes in the future with greater confidence that you are not breaking things, or introducing regressions.

Fit-Gap Analysis

During the more concrete analysis of the application code we will keep an eye out for places that the current technology stack will be a source of friction as your team begins developing new features in the future. A solid foundation with well written code will be more than just easy to maintain, it will also be easy to extend. This part of the project will carefully consider all new features and look for places that external services and internal modules will need to be integrated into the existing application. If the application is missing easy to use extensibility points, this analysis will identify that for you. Our knowledge of the challenges that come from 3rd party service integrations will be used to identify potential complications before you even reach them in your normal development cycle.

Frontend Web UI Analysis

It has been said that design is not just how it looks, it's how it works. Our professional experience working on web application UX design will be leveraged to identify shortcomings and areas for growth on your web application. A properly functioning web application must make efficient use of the web platform with standards compliant and semantically "clean" HTML and CSS. In addition we will analyze your frontend code for opportunities to improve

accessibility, performance, loading times, browser compatibilty, mobile responsiveness, and usage of modern JavaScript APIs. All of this will be balanced with a desire to give your current and future web developers the opportunity to work on a modern and enjoyable tech stack. Once frontend code gets out of date it becomes difficult to find developers that can maintain it. Keeping library dependencies up to date is very import and and we will look fo all of the most valuable places to make those sorts of upgrades and encourage responsible re-writes of frontend code to bring it up to the latest versions.

In addition we will look at the CSS organization and usage of off-the-shelf frameworks that might be bloated, with an opportunity to slim them down by creating custom SCSS packages and creating a custom component library. We will also look at the opportunity of using component workbench tools like Storybook for Angular to give developers a place to isolate frontend code components into easily testable and well documented locations.

Discovery and Analysis Estimate

Description	Time/Quantity	Rate (USD)	Tax	Total
Context Meetings	10	$ 110.00	No Tax	$ 1,100.00
Discuss all current technology choices and software development lifecycle. Discuss product roadmap and requirements.				
Research & Analysis	1	$ 2,100.00	No Tax	$ 2,100.00
Reviewing source code and preparing code reviews and big picture analysis of the whole solution architecture. Fit gap analysis based around future product features. Comparing frameworks, libraries, and databases and researching technology options that are discovered during project meetings.				

Subtotal:	$ 3,200.00
Total:	$ 3,200.00

Report Creation

The output of all of this analysis will be a report that includes detailed but compact explanations of the technological and methodological changes that we will recommend. This report will include helpful code examples, diagrams of current and future application architectures, as well as links to resources for further research. Our report will be a resource that can be used to create tasks and product roadmap items that can be worked through methodically to steadily improve the condition of the web application. If there are sections of the application that are very clean and well written then we will go into detail about why exactly the current approach is suitable and capable of accommodating future growth.

Final Report Estimate

Description	Rate (USD)	Tax	Total
Application Health Report	$ 1,800.00	No Tax	$ 1,800.00
A detailed synthesis of all research and discovery activity findings which impact the viability, security, and stability of the web application.			

Subtotal:	$ 1,800.00
Total:	$ 1,800.00

Consultation

All of the information that we uncover will need to be put into practice, and a long written report will not necessarily be enough to bring members of the organization up to speed. We will provide several hours of consultation for speaking to stakeholders and members of the engineering team in order to provide clarification of our recommendations. This time can be useful for going over various remediation options and cost benefit analysis of the solutions that will be recommended in the final report.

Consultation Estimate

Description	Time/Quantity	Rate (USD)	Tax	Total
Consultation	8	$ 110.00	No Tax	$ 880.00
Meetings and written documentation on how to implement the recommendations and analyze new situations.				

Subtotal:	$ 880.00
Total:	$ 880.00

Payment Schedule

To begin the application analysis project it will be necessary to invest time and energy very quickly. In order to get our immediate focus on this project, an up front payment of 33% is required.

After all code has been delivered and all context meetings have occurred, we will begin the review of the application code and at that point the next third of the payment will be invoiced.

The final third of payment is not required until the entire project is complete and the reports have been reviewed, and all changes have been incorporated.

We can either conduct this project as a series of milestones in the Upwork contract management and payment system or you can utilize the invoicing and billing functions we have available directly through Systematic UI LLC. Either way will work fine for me and I will not change the cost estimates for either method of interaction.