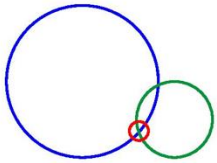
IASA IT Architecture Competition



STUDENT IT ARCHITECTURE COMPETITION - III

RECOGNIZING AND PROMOTING THE ART AND SCIENCE OF IT ARCHITECTURE

ARCHITOPIA ARCHITECTURE EXECUTION PLAN

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1 INTRODUCTION

The purpose of the execution plan document is to capture the phase level approach for building F2E's IT solution to meet the given business requirements. This document followings the Architecture Design Document.

This document includes a timeline for the EPICS, which is broken down into 5 phases – one for each EPIC. In addition, cost breakdown and comparisons table are included for both recommended technology stacks. Option 1 is the Custom Build solution and Option 2 is the SalesForce Solution. Furthermore, a facet mapping table is included to articulate which user story maps to which architecture phase, and which component or layer an EPIC refers to. Finally, at the end of the document, we make a recommendation for the best solution.

2 DESCRIPTION OF THE FIVE EPICS

In this section, we provide a description of the five epics in the F2E project. Each of the 5 EPICS were designed as discrete bodies of work that build on the previous phases.

- EPIC 1 consists of creating a website to showcase activities, statistics and generic information about F2E. After the completion of this EPIC, an anonymous visitor should be able to view information about F2E, download an application to apply as a student, and donate funds. The website, at this point, would be available in multiple languages.

- EPIC 2 intends to create a database for automatic gathering and storage of data. After the creation of this EPIC and if a user's role allows, users should be able to create, edit, and view their profile. In addition, users will be able to take specific actions depending on their role. For example, students will have the ability to track funding and submit deliverables. F2E staff will be able to track students' sponsorship cases along with other administrative actions.

- EPIC 3 will add features to facilitate communication. Here are some examples of the actions that may be taken after the completion of this EPIC: Visitors will be able to send emails to staff to learn more about the organization. Students and mentors will be able to send and receive direct messages. Students will receive reminders to turn deliverables in on time.

- EPIC 4 will add features to automate certain tasks. This EPIC aims to add automation features such as reminding students of upcoming deliverable deadlines and mentor meetings. In addition, mentor-student matching may be made into an automatic process.

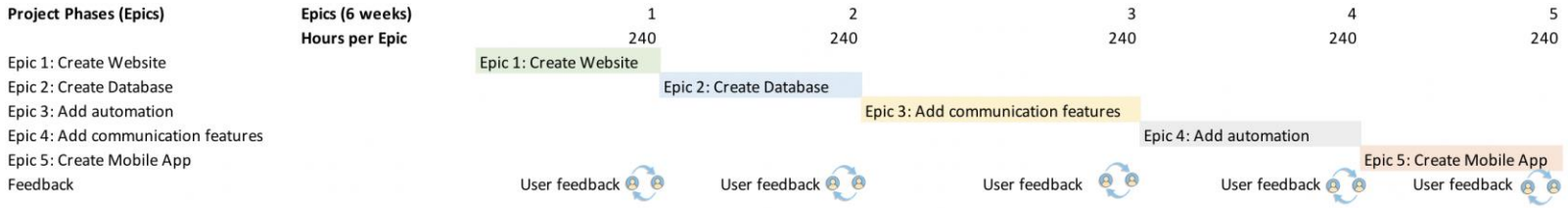
- EPIC 5 is to create a mobile application.[1] This EPIC has been put at the end to ensure that a fully functional web application is created before tackling a mobile application. The mobile application will allow users to do any action that they would be able to do on a web application, but on a mobile device instead.

[1] NOTE: in the business requirement document, this EPIC was labelled as EPIC 3. We swapped the labels of EPIC 3 and 5 in this section to reflect the order in which the EPICS should be executed.

3 TIMELINE OF THE FIVE EPICS

In this section, we provide the timeline for both options. Option 1 is a custom build cloud based solution, while Option 2 relies heavily on Salesforce. The figure below represents the timeline for Option 1, the custom build.

Figure 1: Timeline for Option 1



For option 2, SalesForce, the timeline is almost identical expect that the "Hours per EPIC" will be cut in half from 240 hours to 120 hours per phase. Therefore, for option 2, the hours per EPIC will be 120. We assumed fewer hours for option 2 because SalesForce has fewer things to integrate and customize upfront.

4 EPIC/USER STORIES AND PHASE MAPPING

In this section, we provide an epic/user stories and phase mapping in the table below.

Table 1: Epic/User Stories Mapping

Phase	EPIC/User Stories

Phase 1 - Create Website
• **UI Layer**
  ○ **Static website**
• **Access Layer**
  ○ **HTTPS**
  ○ **User services**
  ○ **Firewall**
• **Third-Party Services**
  ○ **Payment processing**
  ○ **Banking Servicing**
• **Application Layer**
  ○ **Content**
  ○ **Business services**
	EPIC 1, User Story 1
	EPIC 1, User Story 2
	EPIC 1, User Story 3
	EPIC 1, User Story 4
	EPIC 1, User Story 5
	EPIC 1, User Story 6
	EPIC 1, User Story 7
	EPIC 1, User Story 8
	EPIC 1, User Story 9
	EPIC 1, User Story 10

Phase 2 - Create Database
• **Data Layer**
  ○ **Database**
  ○ **RBAC**
  ○ **Database encryption**
  ○ **File storage**
  ○ **File encryption**
  ○ **Data services**
• **Application Layer**
  ○ **Work flow**
  ○ **Forms**
  ○ **Business rules**
  ○ **Application logic**
  ○ **Roles/users**
• **Access Layer**
  ○ **File upload security**
  ○ **Role-based security**
• **UI Layer**
  ○ **Add all the portals (Mentor, Donor, Student, etc.)**
	EPIC 2, User Story 1
	EPIC 2, User Story 2
	EPIC 2, User Story 3
	EPIC 2, User Story 4
	EPIC 2, User Story 5
	EPIC 2, User Story 6
	EPIC 2, User Story 7
	EPIC 2, User Story 8
	EPIC 2, User Story 9
	EPIC 2, User Story 10
	EPIC 2, User Story 11
	EPIC 2, User Story 12
	EPIC 2, User Story 13
	EPIC 2, User Story 14
	EPIC 2, User Story 15
	EPIC 2, User Story 16
	EPIC 2, User Story 17
	EPIC 2, User Story 18

Phase 3 - Add communication Features
• **Application Layer**
  ○ **Communication (scheduled)**
  ○ **App logic**
  ○ **roles/users**
• **UI Layer**
	EPIC 3, User Story 1
	EPIC 3, User Story 2
	EPIC 3, User Story 3
	EPIC 3, User Story 4
	EPIC 3, User Story 5
	EPIC 3, User Story 6

○ **Add new functionalities to the UI** • **Access Layer** ○ **File upload security** ○ **RBAC**	
Phase 4 - Add automation • **Application Layer** ○ **Communication (explicit)** ○ **Application logic** • **UI Layer** ○ **Add the new functionalities to the UI**	EPIC 4, User Story 1 EPIC 4, User Story 2 EPIC 4, User Story 3 EPIC 4, User Story 4 EPIC 4, User Story 5 EPIC 4, User Story 6
Phase 5 - Create Mobile App • **UI Layer** ○ **Make mobile app with same functionalities as web application**	EPIC 5, User Story 1 EPIC 5, User Story 2 EPIC 5, User Story 3 EPIC 5, User Story 4 EPIC 5, User Story 5 EPIC 5, User Story 6

5 COST ESTIMATION

This section outlines the cost estimations for option 1, the custom build solution, and option 2, the SalesForce solution. For each phase, the types of contractors and their hourly rates have been estimated and assumed in accordance to the EPICS timeline outlined above. In addition, we break down the costs into execution plan cost and maintenance plan cost to emphasize the difference of the cost of the two options in short term as well as long term.

5.1 Execution Plan Cost

The two tables below offer a side-by-side look of the two options in terms of execution plan cost.

Figure 2: Execution Plan Cost for Option 1

Option 1: Custom Build

Phase 1: EPIC 1			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Web designer	$ 205.00	140	$ 28,700.00
Tester	$ 95.00	50	$ 4,750.00
Analyst	$ 165.00	50	$ 8,250.00
		Total Cost:	**$ 41,700.00**
Phase 2: EPIC 2			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	140	$ 25,900.00
Tester	$ 95.00	50	$ 4,750.00
Analyst	$ 165.00	50	$ 8,250.00
		Total Cost:	**$ 38,900.00**
Phase 3: EPIC 3			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	140	$ 25,900.00
Tester	$ 95.00	50	$ 4,750.00
Analyst	$ 165.00	50	$ 8,250.00
		Total Cost:	**$ 38,900.00**
Phase 4: EPIC 5			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	140	$ 25,900.00
Tester	$ 95.00	50	$ 4,750.00
Analyst	$ 165.00	50	$ 8,250.00
		Total Cost:	**$ 38,900.00**
Phase 5: EPIC 5			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	200	$ 37,000.00
Tester	$ 95.00	40	$ 3,800.00
		Total Cost:	**$ 40,800.00**
		GRAND TOTAL:	**$ 199,200.00**

Figure 3: Execution Plan Cost for Option 2

Option 2: SalesForce

Phase 1: EPIC 1			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	60	$ 11,100.00
Analyst	$ 165.00	60	$ 9,900.00
		Total Cost:	**$ 21,000.00**
Phase 2: EPIC 2			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	60	$ 11,100.00
Analyst	$ 165.00	60	$ 9,900.00
		Total Cost:	**$ 21,000.00**
Phase 3: EPIC 3			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	60	$ 11,100.00
Analyst	$ 165.00	60	$ 9,900.00
		Total Cost:	**$ 21,000.00**
Phase 4: EPIC 5			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	60	$ 11,100.00
Analyst	$ 165.00	60	$ 9,900.00
		Total Cost:	**$ 21,000.00**
Phase 5: EPIC 5			
Role	**Cost/hour**	**Hours per phase**	**Cost**
Developer	$ 185.00	60	$ 11,100.00
Analyst	$ 165.00	60	$ 9,900.00
		Total Cost:	**$ 21,000.00**
		GRAND TOTAL:	**$ 105,000.00**

5.2 Maintenance Plan Cost

In this part, we consider some long-term costs of the two options.

Table 2: Maintenance Cost Plan

Criteria	Custom Build (option 1)	Salesforce (option 2)
Estimated time for maintenance and for adding new features	Maintenance 96 hr/yr (8 hr/wk) Adding new Features 40 hr/yr	Maintenance 96 hr/yr (8 hr/wk) Adding new Features 40 hr/yr
Maintenance plan cost	Developer ($185/hr) Architect ($225/hr) Analyst ($165/hr)	Salesforce Developer($185/hr)
ANNUAL COST:	$27, 600	$8,880

5.3 Comparison of Option 1 and Option 2

Now we combine both short-term and long-term costs in this section and provide our best choice based on three different criteria. It turns out Option 2 is better than Option 1 in each of the three criteria we choose.

Table 3: Comparison based on time and resources needed to execute solution

Criteria	Custom Build (option 1)	Salesforce (option 2)	Best Choice based criteria specified
Time	240 hours/epic	120 hours/epic	Option 2
Execution Plan Cost	$199,200	$105,500	Option 2
Maintenance Plan Cost	$27, 600	$8,880	Option 2

6 FINAL RECOMMENDATION – SALESFORCE SOLUTION

Although both the Custom Build (Option 1) and Salesforce (Option 2) are feasible options, we recommend Option 2 based on engineering talent required for initial setup and updates, security, and maintainability. It also meets other important criteria like scalability, support from vendor, and customizability. In addition, there is a considerable estimated cost-saving when compared to option 1 in both execution and ongoing costs.

In conclusion, the Salesforce solution would be easier to set-up, maintain, and expand as the organization grows, and we believe this solution will help them achieve their mission effectively and efficiently.