



SAIRA

PREPARED FOR

Dr. Wesley Schultz

Keep America Beautiful

PREPARED BY SAIRA

Ray Thomas Cruz

Angelica Olmedo

Stephen Palumbo

Isaiah Martin

Andre Castillo

i. Cover Letter	2
1. Application Development	3
1.1 Statement of Business Context	3
1.2 Statement of Customer's Business Problems	3
1.3 Statement of Project Proposal	3
1.4 Measures of Success	3
2. Requirements Matrix	4
3. Project Management	5
3.1 Product Breakdown Structure	5
3.2 Work Breakdown Structure	6
3.3 List of Tasks	7
3.5 Cost Tracking Chart	10
3.6 Gantt Chart	11
3.7 Timesheet	12

i. Cover Letter

To: Dr. Wesley Schultz, Advisor to Keep America Beautiful

CC: Dr. Shaun-inn Wu, Director of Projects

In the second phase of this project, our team has gathered and confirmed the final requirements from our JAD2 meeting. As previously discussed, we had also met with the machine learning team to start the collection of the 10,000 images required by them to train their algorithm. At this current time we will be using the automated image retrieval program designed by Cougar Student Technologies to gather the images and to prepare for the next phase. In the next phase of the project, we plan to develop a prototype of the web application that is capable of gathering and storing images in a fashion that can be utilized by the machine learning team.

With regards to the cost of this second phase, our team of five members has totaled ~78 hours at a rate of \$25.00/hour, accruing a total cost of \$1,959.75 for this phase. Since this project has begun, we have accumulated a total cost of \$4,559.75. Currently, we are estimating the total cost of the next phase to \$6,250. We estimate the total cost of the project to be approximately \$16,725, which is subject to change as we continue to work on the project.

Best Regards,

Ray Thomas Cruz

A copy of this report will be submitted to both Dr. Schultz and Dr. Wu

By signing below, you hereby approve Team SAIRA to continue working on the following project: Keep America Beautiful: Litter Detective and agree to the aforementioned estimated costs.

Dr. Wesley Schultz, Advisor to Keep America Beautiful

1. Application Development

1.1 Statement of Business Context

Keep America Beautiful is a nonprofit organization with the mission to improve and clean the environment so we can have a beautiful and green country. One major goal to achieve this mission is to end littering. Littering is a major environmental issue that destroys the environment by polluting areas. There have been many ways that Keep America Beautiful have expressed their efforts to help end littering. They've done this through events and programs like Great American Cleanup and America Recycles Day.

1.2 Statement of Customer's Business Problems

- Keep America Beautiful needs a web based application with a user interface that detects litter in an area.
- Must be able to select geo-coordinates based on user-defined regions.
- Make litter scores accessible within the user-interface from the Machine Learning algorithm.
- Make images and data accessible to the Machine Learning Algorithm

1.3 Statement of Project Proposal

- Create a fully functional user interface that gives the user the ability to select geo-coordinates for a defined region.
- The ability to pull images and data from Google Streets.
- Record data of location and date of images pulled.
- Store images and data somewhere that is made accessible to the ML team.

1.4 Measures of Success

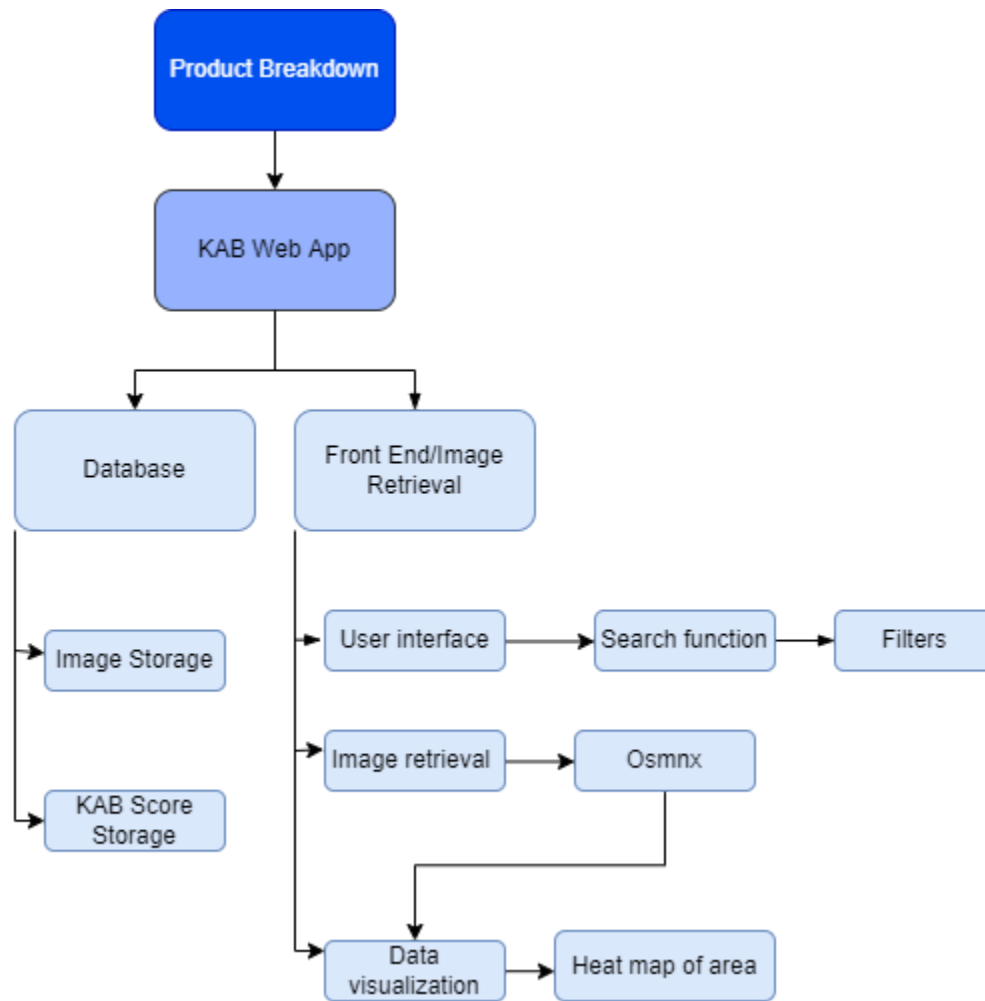
- JAD 1 - Define the requirements of the project.
- JAD 2 - Make any final adjustments or changes to the requirements.
- Prototype 1 - UI development, gives the user the ability to search for a geo-region.
- Prototype 2 - Database management. Store images and data.
- Final Phase - Make all images and data accessible to the ML for them to score litter.

2. Requirements Matrix

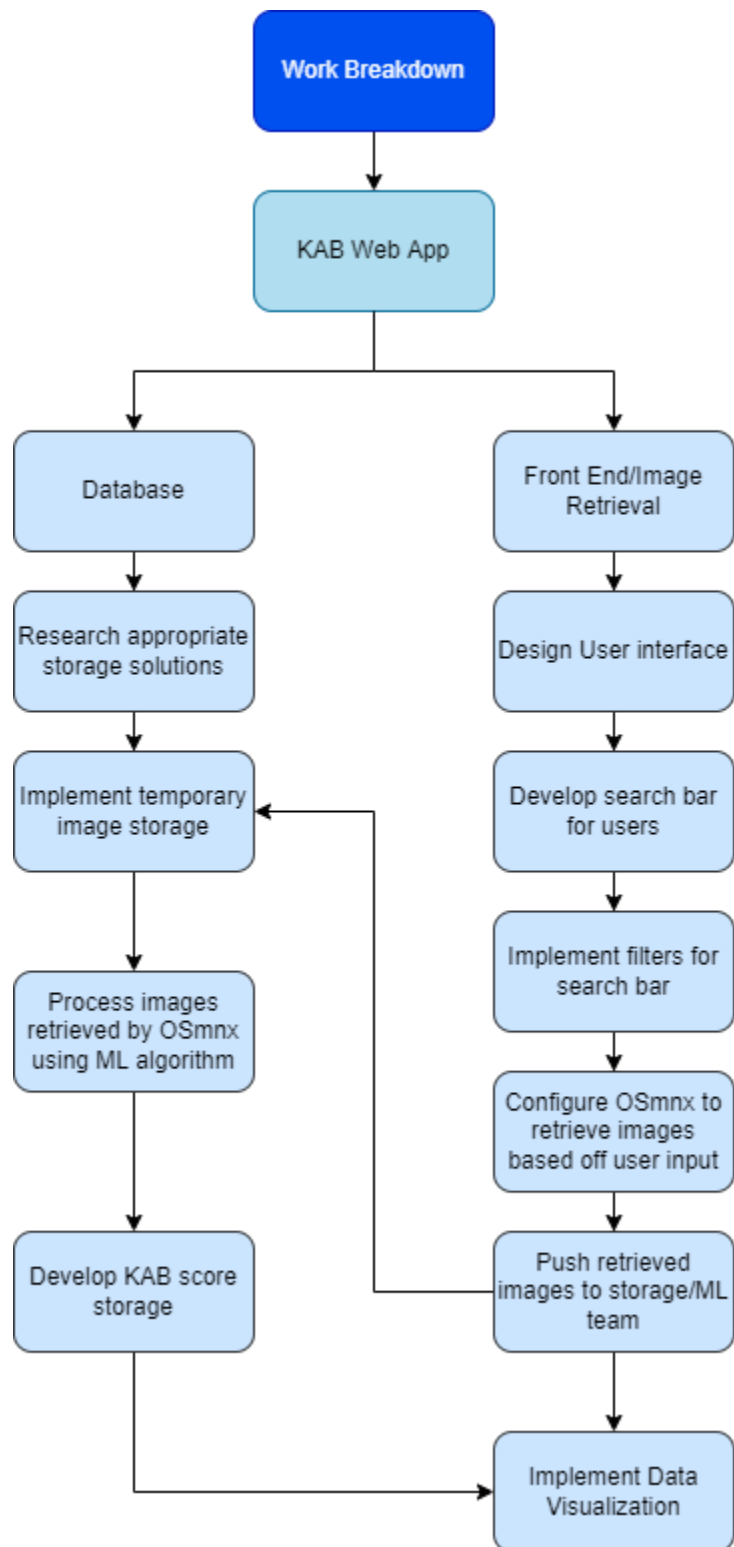
Req. #	Requirement	Description	Implemented [Y/N]	Task
1	Image pulling	-Implement OSMnx to draw streets of selected Cities	N	3.1.3
2	Image Storage	-Decide where to store images pulled with OSMnx -Store image and date pulled -Integrate with ML team	N	3.1., 4.2
3	User Interface	-Design User Interface -Display results from user Query -Retrieve Information from ML algorithm	N	3.2.1,3.2.2
4	Visual Representation	-Display Heatmap -Display KAB Score (Date, Amount of litter, 20 specific objects)	N	3.1.2,3.2.3

3. Project Management

3.1 Product Breakdown Structure



3.2 Work Breakdown Structure



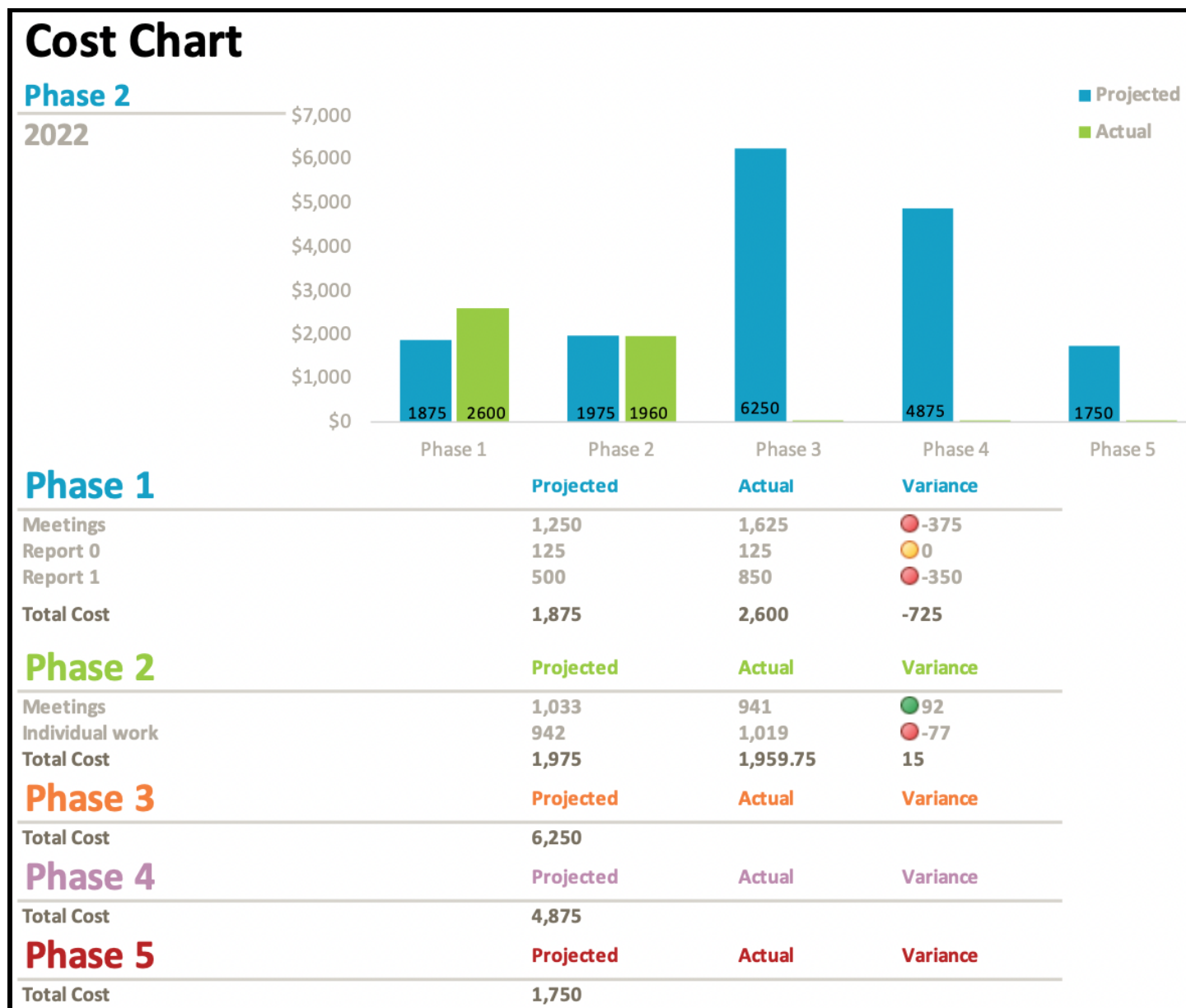
3.3 List of Tasks

ID	Task Name	Duration	Start	Finish	Resource Names	% Complete
1.0	<i>Team Saira - Phase 1</i>	15 days				95.63%
1.1.0	<u>Project Proposal</u>	7 days	<u>1/26/2022</u>	<u>2/1/2022</u>		<u>100.00%</u>
1.1.1	<u>Team Formation</u>	<u>2 days</u>	<u>1/27/2022</u>	<u>1/29/2022</u>	All	<u>100.00%</u>
1.1.2	<u>Team Roles & Meeting</u>	<u>2 days</u>	<u>1/30/2022</u>	<u>1/30/2022</u>	All	<u>100.00%</u>
1.1.3	<u>Report 0</u>	<u>1 day</u>	<u>1/31/2022</u>	<u>2/1/2022</u>	All	<u>100.00%</u>
1.1.4	<u>Interview with Customer</u>	<u>1 day</u>	<u>2/1/2022</u>	<u>2/1/2022</u>	All	<u>100.00%</u>
1.2.0	<u>Project Research</u>	6 days	<u>2/2/2022</u>	<u>2/7/2022</u>		<u>100.00%</u>
1.2.1	<u>Previous Group Research</u>	<u>2 days</u>	<u>2/2/2022</u>	<u>2/3/2022</u>	All	<u>100.00%</u>
1.2.2	<u>Requirements Overview</u>	<u>2 days</u>	<u>2/3/2022</u>	<u>2/4/2022</u>	All	<u>100.00%</u>
1.2.3	<u>Prepare for JAD 1</u>	<u>2 days</u>	<u>2/5/2022</u>	<u>2/7/2022</u>	All	<u>100.00%</u>
1.2.4	<u>Team Meeting</u>	<u>1 day</u>	<u>2/7/2022</u>	<u>2/7/2022</u>	All	<u>100.00%</u>
1.3.0	<u>JAD 1</u>	2 days	<u>2/8/2022</u>	<u>2/9/2022</u>		<u>100.00%</u>
1.3.1	<u>JAD 1 Meeting</u>	<u>1 day</u>	<u>2/8/2022</u>	<u>2/8/2022</u>	All	<u>100.00%</u>
1.3.2	<u>Team Meeting Discussing JAD1</u>	<u>1 day</u>	<u>2/9/2022</u>	<u>2/9/2022</u>	All	<u>100.00%</u>
1.4.0	<u>Report 1</u>	12 days	<u>2/10/2022</u>	<u>2/10/2022</u>		<u>82.50%</u>
1.4.1	<u>Set-up Report & Tasks</u>	<u>1 day</u>	<u>2/10/2022</u>	<u>2/22/2022</u>	All	<u>100.00%</u>
1.4.2	<u>Report 1 Draft</u>	<u>5 days</u>	<u>2/10/2022</u>	<u>2/15/2022</u>	All	<u>100.00%</u>
1.4.3	<u>Sprint Meeting with Customer</u>	<u>1 day</u>	<u>2/13/2022</u>	<u>2/13/2022</u>	All	<u>100.00%</u>
1.4.4	<u>Report 1 Final</u>	<u>5 days</u>	<u>2/15/2022</u>	<u>2/22/2022</u>	All	<u>30.00%</u>
2	<i>Team Saira - Phase 2</i>		<u>2/22/2022</u>			95.63%
2.1.0	<u>JAD 2</u>					<u>100.00%</u>
2.1.1	<u>Prepare For JAD 2</u>	<u>2 days</u>	<u>2/22/2022</u>	<u>2/23/2022</u>		<u>100.00%</u>
2.1.2	<u>JAD 2 Meeting</u>	<u>1 day</u>	<u>2/24/2022</u>	<u>2/24/2022</u>		<u>100.00%</u>
2.1.3	<u>Team Meeting</u>	<u>1 day</u>	<u>2/24/2022</u>	<u>2/24/2022</u>		<u>100.00%</u>
2.1.4	<u>Finalize Requirements</u>	<u>1 day</u>	<u>2/25/2022</u>	<u>2/25/2022</u>		<u>100.00%</u>
2.2.0	<u>Report 2</u>	11 days	<u>2/25/2022</u>	<u>3/8/2022</u>		<u>100.00%</u>

<u>2.2.1</u>	<u>Set-up Report & Tasks</u>	<u>1 day</u>	<u>2/25/2022</u>	<u>2/25/2022</u>		<u>100.00%</u>
<u>2.2.2</u>	<u>Report 2 Draft</u>	<u>4 days</u>	<u>2/26/2022</u>	<u>3/1/2022</u>		<u>100.00%</u>
<u>2.2.3</u>	<u>Report 2 Final</u>	<u>7 days</u>	<u>3/2/2022</u>	<u>3/8/2022</u>		<u>100.00%</u>
<u>2.3.0</u>	<u>Image Development</u>		<u>3/1/2022</u>			<u>50%</u>
<u>2.3.1</u>	<u>Study Previous Group Code</u>	<u>3 days</u>	<u>3/1/2022</u>	<u>3/3/2022</u>		<u>75%</u>
<u>2.3.2</u>	<u>Test Image Pulling</u>	<u>2 days</u>	<u>3/2/2022</u>	<u>3/4/2022</u>		<u>70%</u>
<u>2.3.3</u>	<u>Test JSON for Sending Images</u>	<u>2 day</u>	<u>3/5/2022</u>	<u>3/7/2022</u>		
<u>2.3.4</u>	<u>Give ML Team Images to Test</u>					
<u>3.0</u>	<u>Team Saira - Phase 3</u>					<u>0.00%</u>
<u>3.1.0</u>	<u>Cloud Development</u>					<u>0.00%</u>
<u>3.1.1</u>	<u>Image Storage Solution</u>					
<u>3.1.2</u>	<u>Score Storage</u>					
<u>3.1.3</u>	<u>OSMnx</u>					
<u>3.2.0</u>	<u>UI Development</u>					<u>0.00%</u>
<u>3.2.1</u>	<u>Search Bar</u>					
<u>3.2.2</u>	<u>Filters</u>					
<u>3.2.3</u>	<u>Heatmap</u>					
<u>3.3.0</u>	<u>Prototype 1</u>					<u>0.00%</u>
<u>3.3.1</u>	<u>Prepare For Prototype 1</u>					
<u>3.3.2</u>	<u>Prototype 1</u>					
<u>3.3.3</u>	<u>Team Meeting</u>					
<u>3.4.0</u>	<u>Report 3</u>					<u>0.00%</u>
<u>3.4.1</u>	<u>Set-up Report & Tasks</u>					
<u>3.4.2</u>	<u>Report 3 Draft</u>					
<u>3.4.3</u>	<u>Report 3 Final</u>					
<u>4.0</u>	<u>Team Saira - Phase 4</u>					
<u>4.1.0</u>	<u>Report 4</u>					<u>0.00%</u>
<u>4.1.1</u>	<u>Team Meeting</u>					
<u>4.1.2</u>	<u>Set-up Report & Tasks</u>					

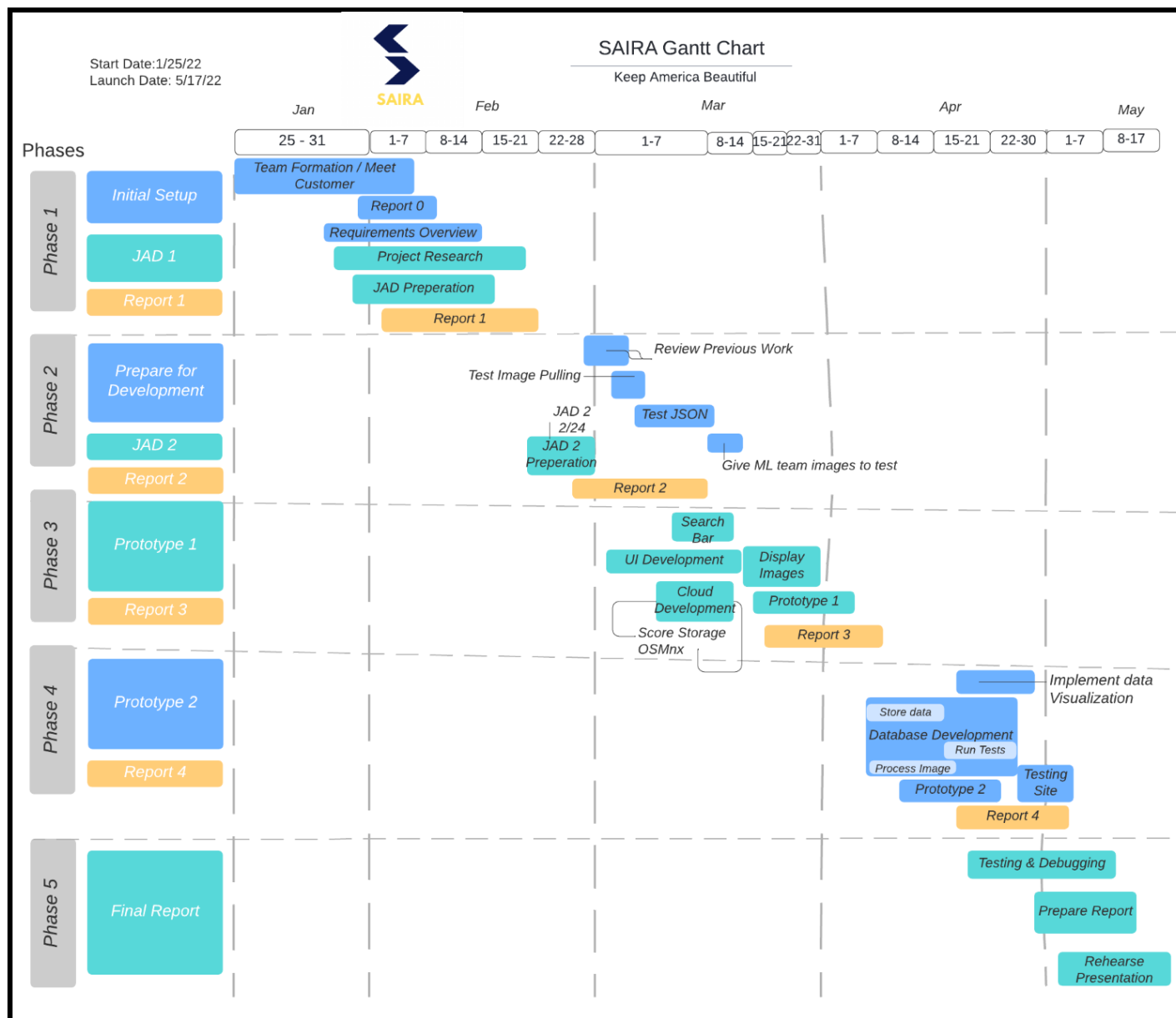
<u>4.1.3</u>	<u>Report 4 Draft</u>					
<u>4.1.4</u>	<u>Report 4 Final</u>					
<u>4.2.0</u>	<u>Database Development</u>					<u>0.00%</u>
<u>4.2.1</u>	<u>Store Image & Data</u>					
<u>4.2.2</u>	<u>Make Accessible to ML Team</u>					
<u>4.2.3</u>	<u>Run Database Tests</u>					
<u>4.2.4</u>	<u>Process Images from ML Team</u>					
<u>4.3.0</u>	<u>Front-End Development</u>					<u>0.00%</u>
<u>4.3.1</u>	<u>Develop Client-Side</u>					
<u>4.3.1</u>	<u>Test Website Usability</u>					
<u>4.3.2</u>	<u>Implement Data Visualization</u>					
						<u>0.00%</u>
<u>4.3.0</u>	<u>Prototype 2</u>					
<u>4.3.1</u>	<u>Prepare For Prototype 2</u>					
<u>4.3.2</u>	<u>Prototype 2</u>					
<u>4.3.3</u>	<u>Team Meeting</u>					
						<u>0.00%</u>
<u>5.0</u>	<u>Team Saira - Phase 5</u>					
<u>5.1.0</u>	<u>Final</u>					
<u>5.1.1</u>	<u>Final Report</u>					
						<u>0.00%</u>
<u>5.2.0</u>	<u>Final Presentation</u>					
<u>5.2.1</u>	<u>Prepare For Presentation</u>					
<u>5.2.2</u>	<u>Prepare Visuals & Demos</u>					
<u>5.2.3</u>	<u>Rehearse Presentation</u>					
<u>5.2.4</u>	<u>Present Final Presentation</u>					

3.5 Cost Tracking Chart



Project Milestone Cost Estimates						Actual Cost For Each Milestone		
Project Name		SAIRA			Start Date		2/1/22	
Clent Name		Dr. Wesley Schultz			End Date		5/17/22	
Project Manager		Angelica Olmedo						
Projected Costs								
	Project Phase	Hours Per Member	Team's Total Hours	Avg. Cost	Others Cost	Total Cost	Team's Actual Hrs	Total Accumulated Costs as of 3/8
1	Phase 1	15	5 members	\$25	\$0	\$1,875	1/25-2/22	\$2,600.00
1.1	Initial Setup	1	5	\$25	\$0	\$125	5	\$125.00
1.2	Meetings	7	35	\$25	\$0	\$875	50	\$1,250.00
1.3	Report 0	1	5	\$25	\$0	\$125	5	\$125.00
1.4	JAD 1	2	10	\$25	\$0	\$250	10	\$250.00
1.5	Report 1	4	20	\$25	\$0	\$500	34	\$850.00
2	Phase 2	15.7	5 members	\$25	\$0	\$1,975	2/22-3/8	\$1,959.75
2.1	Meetings	8.2	41.32	\$25	\$0	\$1,033	37.64	\$941.00
2.2	Individual work	7.5	37.68	\$25	\$0	\$942	40.75	\$1,018.75
3	Phase 3	50	5 members	\$25	\$0	\$6,250	3/8-4/7	
3.1	Meetings	10	50	\$25	\$0	\$1,250		
3.2	Prototype 1	35	175	\$25	\$0	\$4,375		
3.3	Report 3	5	25	\$25	\$0	\$625		
4	Phase 4	39	5 members	\$25	\$0	\$4,875	4/7-4/28	
4.1	Meetings	9	45	\$25	\$0	\$1,125		
4.2	Report 4	5	25	\$25	\$0	\$625		
4.3	Prototype 2	25	125	\$25	\$0	\$3,125		
5	Phase 5	14	5 members	\$25	\$0	\$1,750	4/28-5/17	
5.1	Meetings	7	35	\$25	\$0	\$875		
5.2	Final Report	7	35	\$25	\$0	\$875		
Total		133.7	669	25 per hr		\$16,725		
Estimated Hours Per Person		133.7						
Total Hours		669						
Team Fee's		\$16,725.00			Total Project Cost Estimate		Total Accumulated as of 3/8	
					\$16,725.00		\$4,559.75	

3.6 Gantt Chart



3.7 Timesheet


Timesheet for Week Ending: Week 3


Team SAIRA

2/15/2022


<u>Member Names</u>	<u>Role</u>
Andre Castillo	Application Development
Angelica Olmedo	Gantt Chart and Cost Tracking Chart
Isaiah Martin	Application Development
Stephen Palumbo	Documentation
Ray Cruz	Planning and Team Support


Andre Castillo

Timesheet for Week Ending: _____		Week 4			
Team Name	Team SAIRA				
Member Name	Andre Castillo	Role	Application Development		
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
2/22/2022	Task 1 Project Proposal and Requirements	4	4	0	yes
2/24/2022	JAD2 Meeting	1	1	0	yes
2/22/2022	Meetings	3.5	3	-5	yes
Totals for Week in hours		8.5	8	-5	


Timesheet for Week Ending: _____		Week 5			
Team Name	Team SAIRA				
Member Name	Andre Castillo	Role	Application Development		
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
2/28/2022	Task 1 Updating Previous Groups Code	1	1.5	0.5	yes
2/28/2022	Task 2 Fixing Report 2	1	1.5	0.5	yes
2/28/2022	Retrieving Images	4	3	-1	yes
3/3/2022	Meetings	3.5	3	-0.5	yes
Totals for Week in hours		9.5	9	-0.5	


Angelica Olmedo

Timesheet for Week Ending: _____		Week 4			
Team Name	Team SAIRA				
Member Name	Angelica Olmedo	Role	Project Manager		
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
2/22/2022	Task 1 Cost Tracking Chart	3	4	1	yes
2/24/2022	Task 2 JAD2 meeting	1	1	0	yes
2/22/2022	Task 3 Meetings	3.5	3	-0.5	yes
Totals for Week in hours		7.5	8	0.5	


	Timesheet for Week Ending: _____ Week 5					
Team Name	_____ Team SAIRA _____					
Member Name	_____ Angelica Olmedo _____				Role	_____ Project Manager
Signed:	 _____					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?	
2/28/2022	Task 1 Gantt Chart	0.5	0.5	0	yes	
2/28/2022	Task 2 Cost Chart/Bar	0.75	0.75	0	yes	
2/28/2022	Task 3 Retrieving Images	1.5	1.5	0	yes	
3/3/2022	Task 4 Report2 Review Session	0.33	0.66	0.33	yes	
3/3/2022	Meetings	3.5	3	-0.5	yes	
Totals for Week in hours		6.58	6.41	-0.17		


Isaiah Martin

Timesheet for Week Ending: _____		Week 4				
Team Name	Team SAIRA					
Member Name	Isaiah Martin			Role	Application Development	
Signed:						
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?	
2/22/2022	Task 1 Project Design and Requirements	4	4	0	yes	
2/24/2022	Task 2 JAD2 Meeting	1	1	0	yes	
2/22/2022	Task 3 Meetings	3.5	3	-0.5	yes	
Totals for Week in hours		8.5	8	-0.5		


	Timesheet for Week Ending: _____		Week 5			
Team Name	Team SAIRA					
Member Name	Isaiah Martin			Role	Application Development	
Signed:						
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?	
2/28/2022	Task 1 Get Osmnx up and running	2	1	-1	yes	
2/28/2022	Task 2 Troubleshooting	1	1	0	yes	
3/3/2022	Task 3 Report2 Review Session	0.33	0.66	0.33	yes	
3/3/2022	Task 4 Meetings	3.5	3	-0.5	yes	
Totals for Week in hours		6.83	5.66	-1.17		


Stephen Palumbo

	Timesheet for Week Ending: _____		Week 4			
Team Name	Team SAIRA					
Member Name	Stephen Palumbo			Role	Documentation	
Signed:						

	Timesheet for Week Ending: _____		Week 5			
Team Name	_____ Team SAIRA _____					
Member Name	_____ Stephen Palumbo _____			Role _____	Documentation _____	
Signed:	_____  _____					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?	
2/28/2022	Task 1 Timesheet	1.5	2	0.5	yes	
2/28/2022	Task 2 Setting up osmnx and Retrieving Address	2	3	0	yes	
3/3/2022	Task 3 Report2 Review Session	0.33	0.66	0.33	yes	
3/3/2022	Task 4 Meetings	3.5	3	-0.5	yes	
Totals for Week in hours		7.33	8.66	1.33		

Ray Cruz

	Timesheet for Week Ending: _____	Week 4			
Team Name	_____ Team SAIRA _____				
Member Name	_____ Ray Cruz _____		Role _____	Team Leader	
Signed:	_____  _____				
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
2/22/2022	Task 1 Setting Requirements and Planning	4	6	2	yes
2/24/2022	Task 2 JAD2 Meeting	1	1	0	yes
2/22/2022	Task 3 Meetings	3.5	3	-0.5	yes
Totals for Week in hours		8.5	10	1.5	

	Timesheet for Week Ending: _____	Week 5			
Team Name	_____ Team SAIRA _____				
Member Name	_____ Ray Cruz _____		Role _____	Team Leader	
Signed:	_____  _____				
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
2/28/2022	Task 1 Osmnx Troubleshooting	4	4	0	yes
2/28/2022	Task 2 Setting Meetings	1	1	0	yes
3/3/2022	Task 3 Report2 Review Session	0.33	0.66	0.33	yes
3/3/2022	Task 4 Meetings	3.5	3	-0.5	yes
Totals for Week in hours		8.83	8.66	-0.17	