



**University of
Southampton**

Software engineering group project

Deliverable 1 - Envisioning

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User Understanding

Stakeholders	Role	Description
Ad agency clients	Primary	Views performance metrics of their ad campaigns through the system. After an ad campaign, they can use the system to look at how successful it was by viewing data of key metrics, for example number of clicks or number of bounces over the course of its run. This includes bar charts and histograms which are displayed on the interface of the system as diagrams. They can compare graphs and choose which ad campaign to display data for.
Marketing agency	Primary	A department of the client that creates advertisements for the company client's services, which are then used in the ad campaigns they commission to the ad agency. The agency wants to create engaging campaigns for their clients using the tool, and also have access to the system to help with the design of these campaigns. The main goal is to improve clients' brands and achieve success.
Ad Agency	Secondary	Gives viewers efficient access to the advertising campaigns that the marketing firm generated for its customers. In order to maximise efficiency, the advertising agency oversees communication between the client and the campaign and delivers the input log files required by the product.
Website hoster	Secondary	The website which ads can be displayed on. Has advertising space on its pages which it outsources to ad networks to sell. When ads are run, the website hoster can view information on the ads that showed on their website and forward it to the ad agency.
Web Customers	Tertiary	Comes across the ads of a company running an ad campaign while browsing. Can choose to ignore the ad, or if they are interested, click on the ad and purchase their services. Sometimes they may click on the ad by accident, and will most likely try to navigate back out without any interaction between the browser and the ad.
Government regulators	Tertiary	Supervise advertisements and provide advice to the host on which ads are permitted. They don't directly interact with the system, but if some illegal advertisements show up, the government will get involved with the hoster.

Software developers (us)	Facilitating	Creates and updates the product that was produced for the marketing company to help clients assess the performance of their particular advertising efforts. The Marketing Company will utilise the product to contrast various advertising efforts in order to create future ones that are more successful and expand their business.
Investors and shareholders	Facilitating	The agency may have an investor or shareholders who are interested in the system's success as well as the agency's overall business. Since they provide a financial stake in the success of the agency they may come up with feedback or guidance on the development and implementation of the system.

Personas

Marketing agency

Name - Joyce Smith

Job - Director of a Marketing agency.

Background - Joyce is 32 years old and has a masters in marketing. While at university, she created a successful marketing agency start-up and after finishing university pursued to grow the business. The clients are all different types of businesses, ranging from new start-ups to large companies. She has many employees that handle the day to day running of the businesses. Joyce enjoys listening to music, and plays several instruments.



Situation in Organisation - Joyce can view the output data of the system to analyse trends for her client as well as to check if her marketing methods are successful.

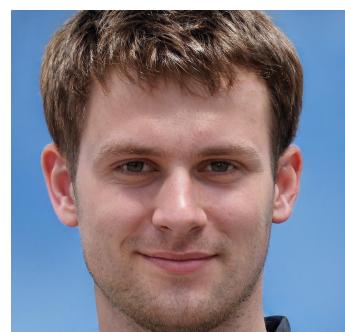
Objective beliefs worries - Joyce's main goal is to keep her clients happy and to grow her business, they are worried that without investing into new tools and keeping up with new technological advancements, it will cause her business to stagnate and could cause her clients to try and find a new marketing agency.

Web browser persona

Name - Oscar Chen

Job - Student

Background - Oscar is 20 years old from the United Kingdom and is currently studying mechanical engineering in America. He has become proficient with the use of CAD/CAM modelling and uses his free time to read about robotics and its new developments in the field. Oscar has used technology for most of his life and frequently uses social media.



Situation in Organisation - Oscar does not directly interact with the tool, however while browsing the web he will see the advertisements that are displayed.

Objective beliefs worries - Oscar is worried about the impact of targeted advertisements and thinks that it allows businesses to have access to more of his personal data than is necessary. He believes that everyone should be able to use the internet anonymously and no data should be collected unless the individual wants to give their data.

Ad Agency Client Persona

Name - Brian Loren

Job - Head of a Supermarket Chain across the UK

Background - Brian is 52 years old and is a respected head of his supermarket company Freshfoods, which he inherited from his late father. In university he achieved a Computing and IT degree at a bachelors level, and is passionate about web design and wants to branch out his chain across the internet. In his free time he visits his friends to go golfing, and reads up on news about new developments in Artificial Intelligence.



Situation in Organisation - His supermarket's systems are fairly outdated so he has been seeking to update its digital infrastructure and branch out across the internet to further his company's reach through ad agencies.

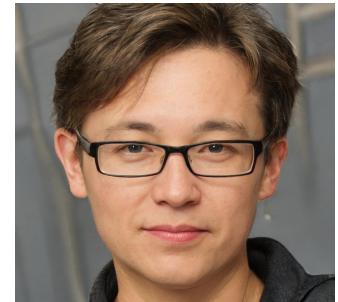
Objectives, beliefs and worries - The company's profits have been stagnating and he worries that it is because his company is not up to date with current trends and is failing to reach a greater audience. It is his first time commissioning an ad agency, so he isn't certain how his ads will perform and if it is worth using these services in the future. He isn't certain of his target demographic for his supermarket, and wants to obtain data about customers so that he can plan future sales and offers in his supermarkets.

Software Developer

Name - Marwan

Job - Software Engineer

Background - In the beginning of his 20s Marwan secured a position as a software engineer at a big business after earning his degree in computer science. He is a driven engineer, aiming to solve issues and, perhaps, make the world a better place.



Situation in organisation - It is his responsibility to create and keep up systems like the Ad Dashboard.

Objectives, beliefs and worries - It is his responsibility to design a maintainable system that can function for so many years if he is to produce systems that are worthwhile and intuitive for his clients. He is aware of spaghetti-filled code bases and wishes to prevent this.

Ad Agency

Name - James Quincey

Job - Chief Executive Officer of an Ad Agency

Background - James, 42, is the CEO of an advertising agency. His education began at Southampton University where he graduated with a degree in electronic engineering. Quincey started his career in the IT industry, holding a variety of positions for several different businesses. He ultimately made his way into the world of advertising, though, and quickly established a reputation as a talented marketer.



Situation in organisation - As the CEO of the ad agency, James Quincey would be responsible for overseeing the agency's operations and ensuring that it delivers high-quality services to its clients. This would involve monitoring the agency's interactions with its clients and making sure that it is supplying the input log files from each campaign to the clients.

Objective, beliefs and worries - James Quincey aims to deliver high-quality services to clients and keep his agency competitive. He believes that success in advertising is driven by innovation and creativity. He wants to deploy a way of analysing the ad campaigns to prevent the clients from switching agencies

Requirements Planning

Product Backlog

Time Estimate Codes

XS - Shortest time to implement, around an hour

S - Short time to implement, a few hours

M - Average time to implement, 4 - 5 hours

L - Long time to implement, a day

XL - Longest time to implement, 2-3 days

Priority Codes (MoSCoW) Must Should Could Won't

ID	User Story	Time Estimate	Test	Priority
1	As a sales manager in my company, I want to see a chart representation of the data so that it's easy to see the trends in the ad campaign.	L	Can the program display an accurate graph for each key metric over a specific time interval?	Must
2	As a trend analyser in my company, I want to be able to have charts of data over different time intervals so I can see the differences in time.	L	Can the data points on the charts be computed over different specific time intervals (e.g an hour, a day, a week)?	Must
3	As an Ad Agency, I want to have a way I can provide my clients their ad campaign data so that they are able to see the results of the campaign	M	Can the system read data from multiple differently formatted csv files?	Must

4	As the head of my company, I want to see the key metrics of my campaign in the system so I can check how it performed.	M	Is each key metric able to be displayed on a GUI?	Must
5	As a meticulous company CEO I want to be able to set the minimum number of pages or time spent for a bounce to be registered to cater to my analysis.	M	Does changing the bounce definition affect how it is processed in the data?	Must
6	As the client company head analyst, I want a histogram relating to the click costs of the campaign so I can easily see the distribution of click costs	M	Does a histogram correctly display that takes into account all the click costs included in the input data?	Must
7	As a Marketing Agency, I want to ensure each key metric from the campaign is able to be calculated to provide accurate statistics to the company client.	S	Is each key metric able to be computed in the system?	Must
8	As a senior marketing analyst in the client company I want to be able to filter graphs in the system by the context of the ads so that I can see which types of ads target the most people.	S	Can graphs in the system be filtered by different contexts (e.g Shopping, Social media)?	Must
9	As a reliable ad agency, I want to know how a bounce is defined so I can have accurate definitions for the statistics my clients review.	S	Is there an option to change bounce rate to a number of pages visited or a certain time spent on the website?	Must
10	As a sales analyst in the company, I want to be able to filter graphs in the system by date ranges so that I can explore the graphs on a deeper level.	XS	Can the user choose a filter for a graph that updates its information accordingly?	Must
11	As an organised company CEO, I want to be able to view the timeframe of my metrics so I can see the campaigns performance over time.	XS	Can the key metrics be grouped by different timeframes?	Must
12	As a company client assistant I want to have a sidebar with different types of graphs so that I can easily choose which graph to show on the system.	L	Is there a sidebar that switches the type of graph used when an option is selected?	Should
13	As director of sales in the client company, I want to be able to switch the time periods of the barcharts so that I can look deeper into the date trends of the graphs.	M	Are there interface buttons that allow the time granularity of the charts?	Should
14	As the CEO of a marketing firm, I want my staff to create comparison reports comparing two graphs side by side for each advertising campaign so that we can analyse revenues quicker.	S	Can two graphs or charts be shown on the GUI together?	Should
15	As a software developer who is a part of the testing team I want the code to be efficient so that the system can read in large amounts of data without making the system slower.	S	Can the system accommodate large data files without heavily slowing down?	Should
16	As an ad agency customer support employee I want the system to display error messages when incompatible files or irrelevant data is input into the system.	S	Are errors displayed to the user when they make a mistake?	Should

17	As the head of advertising at my company I want to be able to have graphs updated quickly with new data so that I can immediately see the graphs when I select an option.	S	Do the graphs in the system take less than 5 seconds to load in when filters or metrics are applied?	Should
18	As a sales analyst of a travel company I want to be able to filter audience segments by different metrics such as gender, age range, or income.	M	Can filters be applied to the data to narrow the data being analysed, and thus making it easier to read and compare?	Should
19	As a CEO of my company I want the system to change sizes depending on the screen resolution so I can use the application during meetings on a large TV display, as well as on my office desktop, and on my laptop when I'm travelling	XS	Will the application have appropriate scaling for different screen sizes?	Should
20	As a CEO of my company I want to be able to customise the application so that its appearance matches my brands colour schemes and font	L	Does the system include a settings page which gives the users reasonable control on the appearance of the application?	Could
21	As an observant company employee, I want to be able to overlay two graphs on the system so I can see differences and similarities between them.	M	Is there an option to display one graph on top of another?	Could
22	As a senior sales analyst of my company I want to apply multiple audience segments (e.g age range of 20-29 with an income less than £20000) filters at once so that I can explore more specific demographics for our services.	M	Can multiple filters be applied at the same time?	Could
23	As a CEO of my company, I want to have colour themes for people with colour blindness so that it can be used by a wider range of people.	S	Can different colour schemes for the system's GUI be chosen through the system?	Could
24	As a company salesman I want the charts to be stylised so they are presentable in meetings.	XS	Are the graphs aesthetically pleasing to look at?	Could
25	As a CEO who always presents reports to their client company I want a tool to save the graphs as an image and have the charts look nice and formatted.	XL	When saving the graph as an image will it be nicely formatted, and not cause concerns when file writing?	Won't

Project Planning

Time estimation per increment

Increment	XS	S	M	L	XL
1	2	3	2	1	N/A
2	N/A	1	3	2	N/A
3	2	2	3	1	1

Colour coded to match the priority of the user story, number represents the ID and the symbol represents the time estimate.

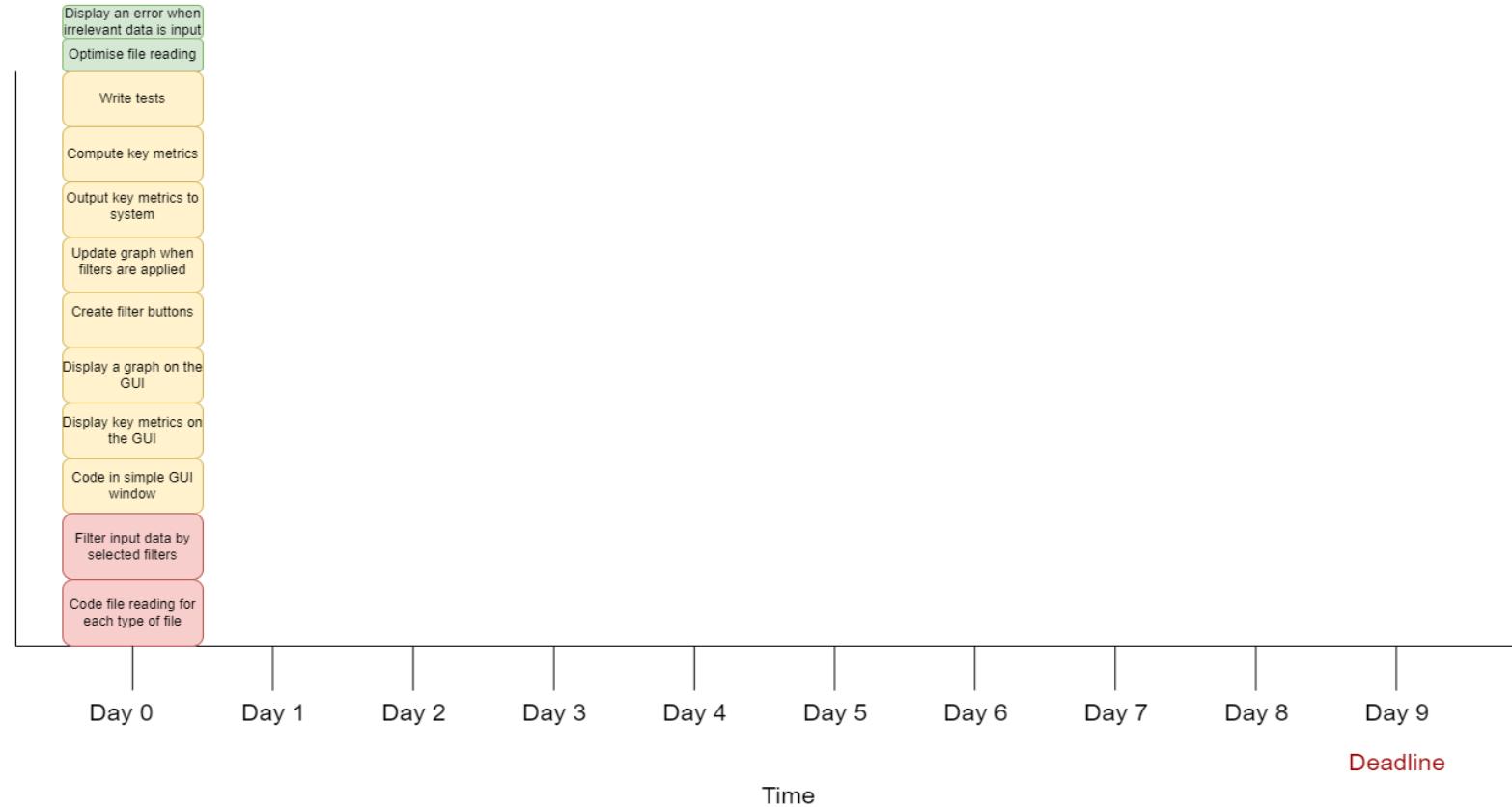
We have shortened down each user story to its main goal.

Increment 1	Increment 2	Increment 3
3-M: ad campaign data	2-L: charts of data over different time intervals	6-M: histogram relating to the click costs of the campaign
7-S: key metric from the campaign	9-S: option to define bounce	18-M: filter audience segments by gender, age range, or income etc
4-M: key metrics of my campaign displayed in system	5-M: set the minimum number of pages or time spent for a bounce	17-S: graphs updated quickly with new data
11-XS: view the timeframe of my metrics	13-M: switch the time periods of the barcharts	19-XS: system to scale size
1-L: chart representation of the data	14-S: comparison reports comparing two graphs	20-L: could customise the application
10-XS: filter graphs in the system by date ranges	12-L: sidebar with different types of graphs	23-S: colour themes for people with colorblindness
8-S: filter graphs in the system by ad context	21-M: overlay two graphs on the system	22-M apply multiple audience segments filters at once
15-S: code efficient in reading large data		24-XS: charts to be stylised.
16-S: display error messages for incompatible files or irrelevant data		25-XL: tool to save the graphs as an image

Sprint backlog

Task	Member doing task	Hour Estimate
Code file reading for each type of file (e.g Click log, Impression Log, Server log)	Marwan	4
Filter input data by the selected filters	Jack	4
Compute key metrics	Marwan	3
Display a graph on the GUI	Smith	3
Output key metrics to the system	Henry	2
Update the graph when filters are applied	Aditya	2
Write tests	Aditya	2
Code in simple GUI window	Henry	2
Create filter buttons	Henry	2
Display key metrics on the GUI	Smith	2
Make the system display an error when irrelevant data is input	Marwan	1
Optimise file reading	Jack	1

Burn Down Chart



Project Set-Up

For our project, we have set up various tools to use during its development. For communication we will use Teams and Discord to chat with each other and our supervisor and make online calls if we cannot meet up in person.

To develop our system we will use IntelliJ, as we are all familiar with this IDE for the Java language and it also supports collaboration and version history. In addition to this, we will use google docs for effective collaboration for the documentation and reports we will write and Soton Git for version control. To assist in tracking our sprint progress during development we will also use the agile scrum tool Trello.

Risk analysis

*Probability (Prob) (1, low – 5, high)

*Severity, (Sev) (1, low – 5, high)

Risk	Prob	Sev	Risk Exposure (E = P*S)	Mitigation
GUI errors: The interface of the system isn't functioning or misplaced.	4	5	20	Test the code after creating any buttons and ensure they work as expected. Check whether it outputs the correct data.
The input files are in the wrong format	3	5	15	Include error checking and error messages when reading in files so that incorrectly formatted files aren't accepted
Due to illness or personal reasons, an employee had to leave before the project was finished.	2	5	10	Focusing on the 'MUST' and 'SHOULD' tasks at the beginning is crucial to complete the critical functionalities even with a loss of work hours. We may have to exclude 'COULD' tasks if we can't meet the deadline.
Performance issues with the system	3	4	12	Create stage testing at every sprint and adjust where required also have two design, one as backup
The Ad agency's requirements for the system change due to change in management	3	4	12	Find out the new requirements the agency wants and modify our current system to implement these changes. We may have to modify our user stories and our tasks for the upcoming increments.

Important files for the system accidentally deleted/corrupted	2	4	8	Version control through IntelliJ or Soton git - keep updated local backups in each team member's personal device
Not all the planned user stories are implemented into the system before the increment deadline	3	3	9	Evaluate the user stories left to finish and assess whether to move them over to the next increment. Check the priorities to determine what must move to the next increment and what can be sacrificed to save time.
Technical issue causing temporary loss of data access	3	2	6	Regular backups to reduce the amount of any temporary data loss and also we could make the development team do regular check ups
Minor typos in dashboard text	3	1	3	Before publishing the dashboard, the development team might conduct a quality assurance method to find and correct mistakes.