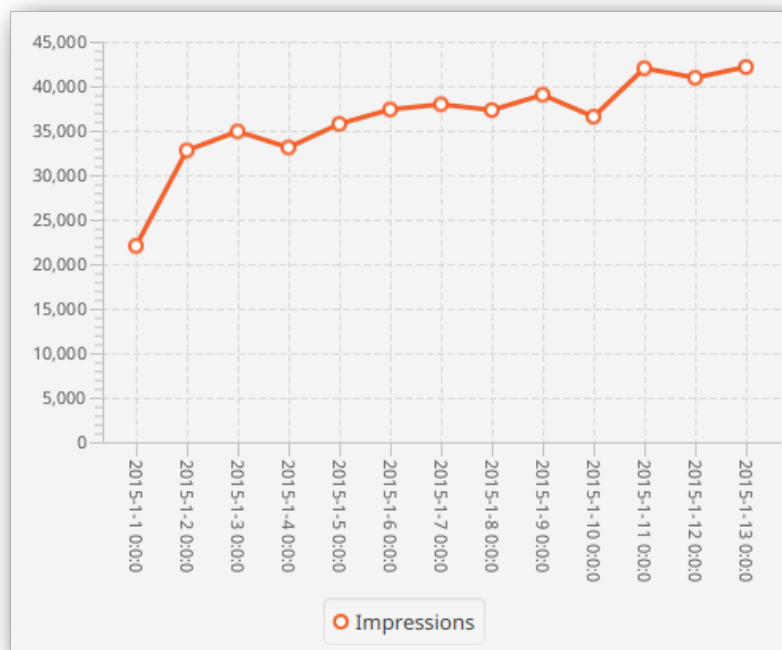


COMP2211

SEng Group Project

Ad Auction Dashboard (2024)



Group 24
Version 1
Hand-in 2

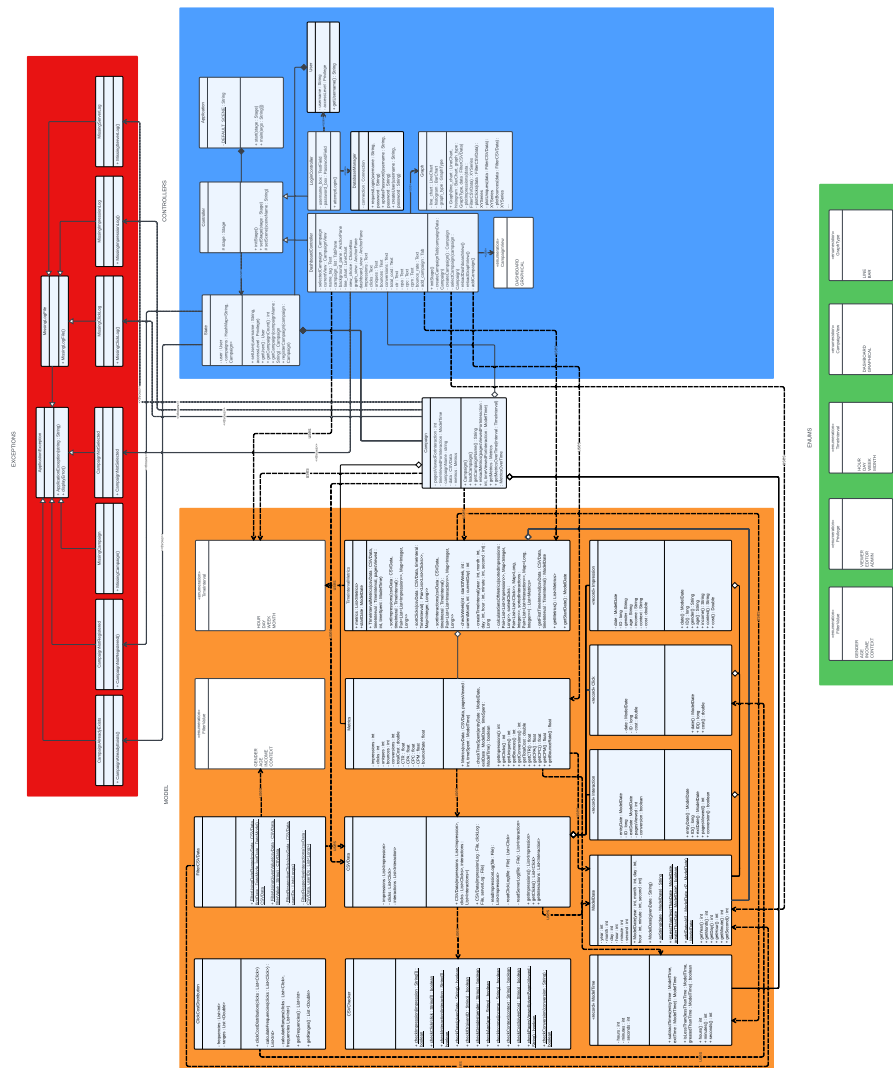
Part I.

Increment 1

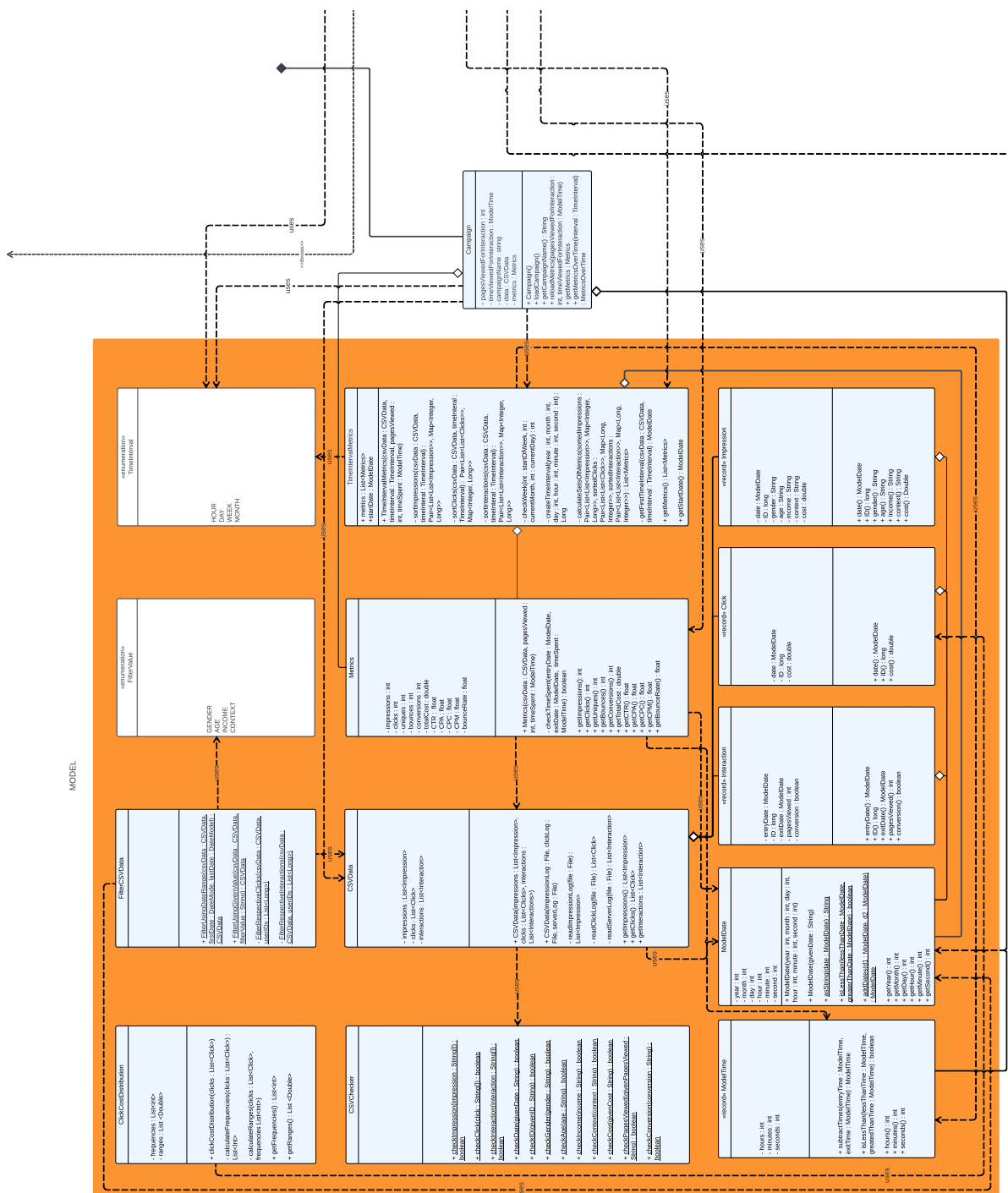
1. Design

We have opted to use the MVC (model-view-controller) architecture to structure our application as it best encapsulates the base controller-fxml relation of JavaFX.

1.1. UML Class Diagram



1.1.1. Model



```

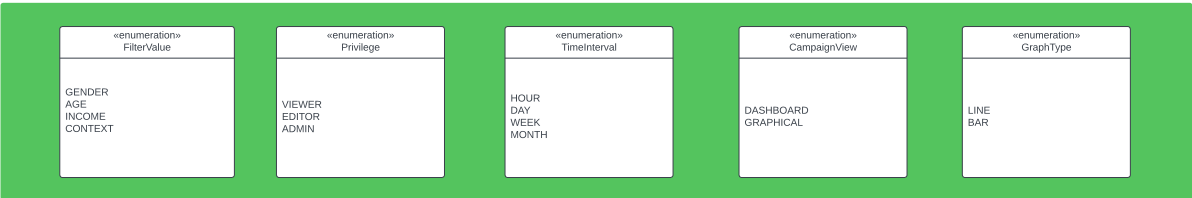
classDiagram
    class Application {
        -DEFAULT_SCENE : String
        +start(stage : Stage)
        +main(args : String[])
    }
    class Controller {
        # stage : Stage
        +initStage()
        +setStage(stage : Stage)
        +setScene(sceneName : String)
    }
    class State {
        - user : User
        - campaigns : HashMap<String, Campaign>
        + setUser(username : String, accessLevel : Privilege)
        + getUser() : User
        + getCampaignCount() : int
        + getCampaign(campaignName : String) : Campaign
        + registerCampaign(campaign : Campaign)
    }
    class User {
        - username : String
        - accessLevel : Privilege
        + getUsername() : String
    }
    class LoginController {
        - username_box : TextField
        - password_box : PasswordField
        + attemptLogin()
    }
    class DatabaseManager {
        - connection : Connection
        + requestLogin(username : String, password : String)
        + updatePassword(username : String, password : String)
        + createUser(username : String, password : String)
    }
    class DashboardController {
        - selectedCampaign : Campaign
        - currentView : CampaignView
        - name_tag : Text
        - campaign_list : TabPane
        - background_pane : TabPane
        - line_chart : LineChart
        - view_choice : ChoiceBox
        - dashboard_view : AnchorPane
        - clicks : Text
        - uniques : Text
        - bounces : Text
        - conversions : Text
        - total_cost : Text
        - ctr : Text
        - cpa : Text
        - cpc : Text
        - cpm : Text
        - bounce_rate : Text
        - add_campaign : Tab
    }
    class Graph {
        - line_chart : LineChart
        - histogram : BarChart
        - graph_type : GraphType
        + Graph(line_chart : LineChart, histogram : BarChart, graph_type : GraphType, data : FilterCSVData)
        - plotImpressions(data : FilterCSVData) : XYSeries
        - plotClicks(data : FilterCSVData) : XYSeries
        - plotUniques(data : FilterCSVData) : XYSeries
        - plotBounces(data : FilterCSVData) : XYSeries
    }
    class Campaign {
        - pagesViewedForInteraction : int
        - timeViewedForInteraction : ModelTime
        - campaignName : string
        - data : CSVData
        - metrics : Metrics
        + Campaign()
        + loadCampaign()
        + getCampaignName() : String
        + reloadMetrics(pagesViewedForInteraction : int, timeViewedForInteraction : ModelTime)
        + getMetricsOverTime(interval : TimeInterval) : MetricsOverTime
    }
    class DASHBOARD_GRAPHICAL {
        «enumeration»
        CampaignView
    }

    Application --> Controller
    Application --> State
    Controller --|> LoginController
    Controller --|> DashboardController
    State *-- LoginController
    State *-- DashboardController
    State *-- Campaign
    State *-- Graph
    State ..> Campaign : <<throws>>
    LoginController --> DatabaseManager
    DatabaseManager --> Graph
    DashboardController --> Campaign
    DashboardController --> Graph
    Campaign --> DASHBOARD_GRAPHICAL
    Graph --> DASHBOARD_GRAPHICAL
    
```

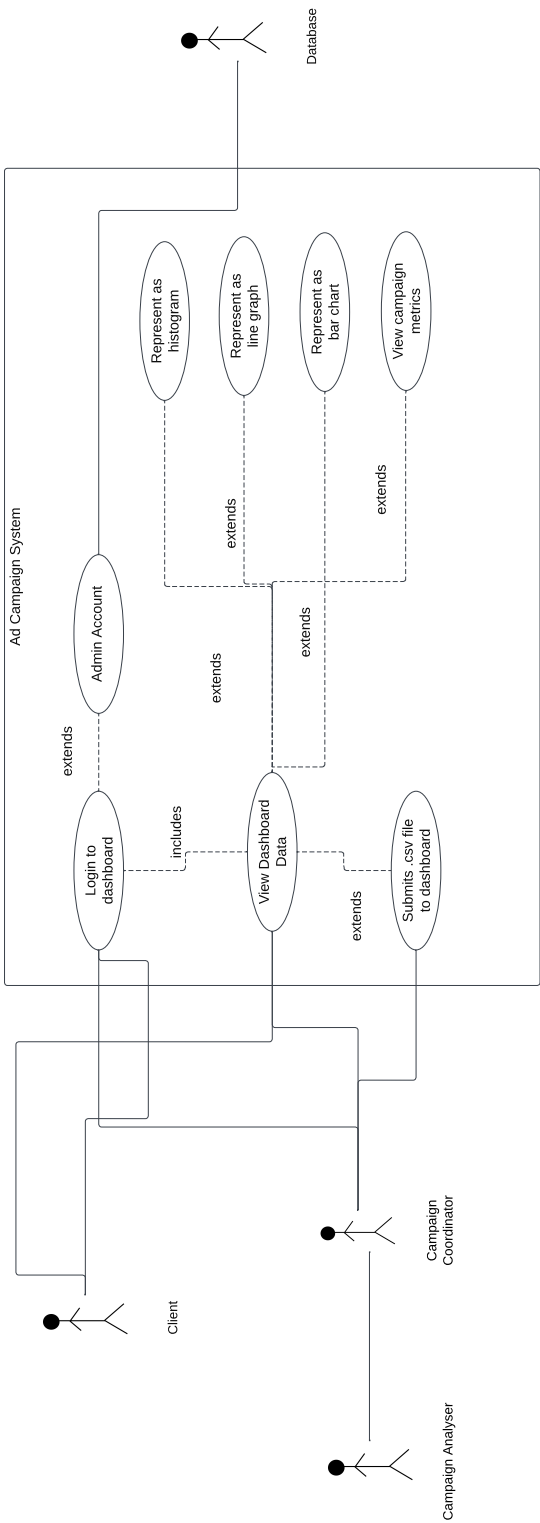
1.1.3. Exceptions



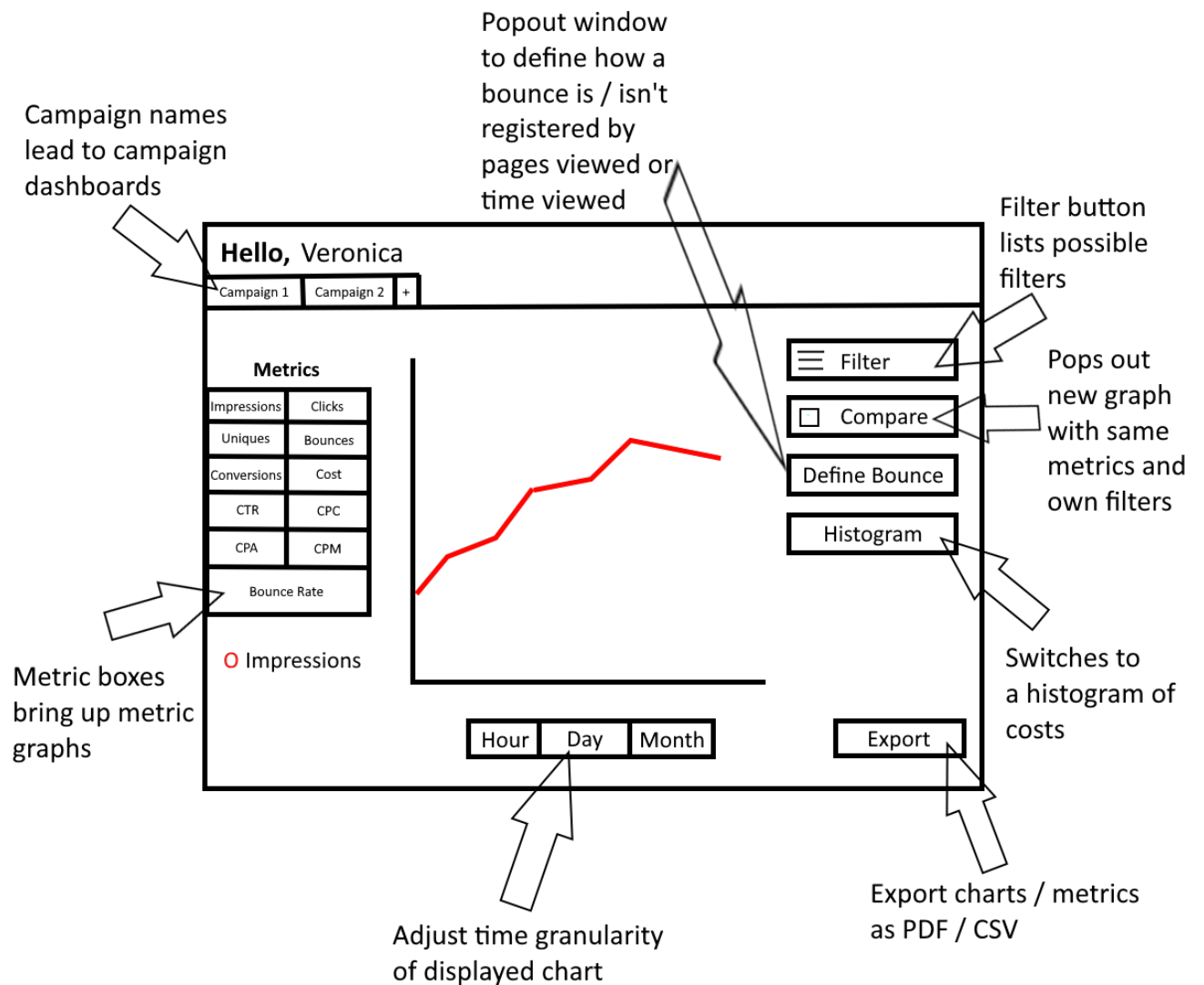
1.1.4. Enums



1.2. UML Use-Case Diagram



1.3. Storyboard



1.4. Scenarios

Veronica Haileys is a first-time entrepreneur:

- Veronica opens the application
- She logs in using the credentials provided by the marketing agency
- She submits the CSV data directory provided by her agency
- Veronica can view key information about her campaign
- She can check what terms mean, how they are calculated, and what unit of measurement they use
- She is notified of any accidental misuse of the software
- She can also view instructions on how to use the software if needed

Sharon McGee is an Etsy store owner:

- Sharon opens the application
- She logs in using the credentials provided by the marketing agency
- She submits the CSV data directory provided by her agency
- Sharon can switch to graph view
- She can view trends of campaigns for different Etsy listings overtime
- She can easily compare these trends visually using filters

Bill Hawks is a marketing agency manager:

- Bill opens the application
- He logs in using the credentials provided by the software administrators
- Bill can create new dashboard viewing accounts for his clients
- Bill can also submit and view campaign data for his team's campaign analyser to determine trends
- Agency members can now better-target campaigns based on trends and audience data

Marcus Hemmering is a returning entrepreneur who wants to look into other markets:

- Marcus opens the application
- He logs in using the credentials provided by the marketing agency
- He submits the CSV data directory provided by her agency
- Marcus can view a histogram of his total costs on campaigns overtime
- He can define what is / isn't considered a bounce
- He can also export charts to share with his employees

2. Testing

Though we set up JUnit, the only test currently implemented is one to check that the harness is working. This is because we currently have no sure-fire way of determining, for example, the bounce rate of a campaign without working it out ourselves. We plan to implement these tests as soon as possible, however, to ensure the correctness of our program.

Please find a table of tests carried out to ensure the correctness of our program for this sprint below:

ID	Test	Test Data	Expected	Actual	Action
0	Can switch from login page to dashboard page	Press login and select a directory with an impression, click and server logs	Should switch to dashboard when login	Switched to dashboard when login	N/A
1	Selecting an invalid directory is handled	Select directory with no impression log	Should display warning	Displayed warning	N/A
2	Selecting an invalid directory is handled	Select a directory with no click log	Should display warning	Displayed warning	N/A
3	Selecting an invalid directory is handled	Select directory with no server log	Should display warning	Displayed warning	N/A

ID	Test	Test Data	Expected	Actual	Action
4	Closing directory selector without selection	Select no directory	Should display warning	Error	Catch error and display warning popup
5	Closing directory selector without selection	Select no directory	Should display warning	Displayed warning	N/A
6	Correct number of impressions is calculated and displayed	Press login and select a valid directory	486104	486104	N/A
7	Correct number of clicks is calculated and displayed	Press login and select a valid directory	23923	23923	N/A
8	Correct number of uniques is calculated and displayed	Press login and select a valid directory	23806	23806	N/A
9	Correct number of bounces is calculated and displayed	Press login and select a valid directory	23867	23867	N/A
10	Correct number of conversions is calculated and displayed	Press login and select a valid directory	2026	2026	N/A
11	Correct total cost is calculated and displayed	Press login and select a valid directory	1180.98	1180.98	N/A
12	Correct CTR is calculated and displayed	Press login and select a valid directory	0.0492	0.0492	N/A
13	Correct CPA is calculated and displayed	Press login and select a valid directory	0.583	0.583	N/A
14	Correct CPC is calculated and displayed	Press login and select a valid directory	0.049	0.049	N/A
15	Correct CPM is calculated and displayed	Press login and select a valid directory	2.430	2.430	N/A
16	Correct bounce rate is calculated and displayed	Press login and select a valid directory	0.9977	0.9977	N/A

ID	Test	Test Data	Expected	Actual	Action
17	Can switch from dashboard view to graph view	Click graph on view drop-down	Should switch to graph page on select	Switched to graph page on select	N/A
18	Can switch from graph view to dashboard view	Click dashboard on view drop-down	Should switch to dashboard page on select	Switched to dashboard page on select	N/A
19	Metric graph is displayed	Click graph on view drop-down	Should display metric graph	Displayed metric graph	N/A
20	Metric graph has correct y-axis	Click graph on view drop-down	Should have a y-axis of the metric's values	Had a y-axis of the metric's values	N/A
21	Metric graph has correct x-axis	Click graph on view drop-down	Should have a x-axis of dates	Had a x-axis of dates	N/A
22	Correct values are displayed on the metric graph	Click graph on view drop-down	94, 96, 115, 105, 110, ...	4, 6, 16, 1, 68, ...	Fix error in grouping entries in the log files according to a time interval.
23	Correct values are displayed on the metric graph	Click graph on view drop-down	94, 96, 115, 105, 110, ...	94, 96, 115, 105, 110, ...	N/A

3. Planning

3.1. This Increment

3.1.1. Burndown Chart

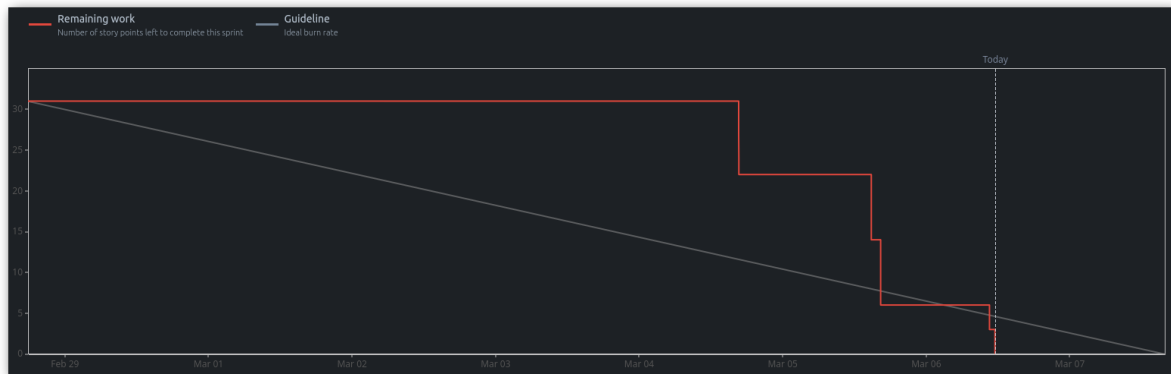


Figure 1: Final burndown chart for increment 1

3.1.2. Sprint Plan Review

Throughout the sprint, we found that we had underestimated the effort levels required to complete tasks across the board and have therefore addressed this in our review. Moreover, the task 'SCRUM-12' (shown below) was moved to the second increment's scope as it involved the filtering of data, which was unrealistic for this first sprint. We also found that certain stories were able to be implemented together, thus varying the effort levels as some implementation may already be done at that point.

Wireframe & Extracting Data 22 Feb – 7 Mar (12 issues)

31

Start sprint

...

SCRUM-8	As a client I want to view the number of clicks so that I'm able to track the number of people that have click...	VIEWING NUMERICAL DAT	TO DO	2	BH
SCRUM-11	As a client I want to view the number of impressions so that I'm able to track the number of people that s...	VIEWING NUMERICAL DAT	TO DO	2	MC
SCRUM-13	As a client I want to view the total cost so that I'm able to track the performance of my ad	VIEWING NUMERICAL DAT	TO DO	3	AM
SCRUM-10	As a client I want to view the number of uniques so that I'm able to track the number of unique users that...	VIEWING NUMERICAL DAT	TO DO	3	P
SCRUM-9	As a client I want to view the number of bounces so that I'm able to track the level of user retention on my ...	VIEWING NUMERICAL DAT	TO DO	3	DS
SCRUM-57	As a client I want to view the number of conversions so that I know how many people have acted on my ca...	VIEWING NUMERICAL DAT	TO DO	2	MC
SCRUM-12	As a client I want to view audience data so that I can target the majority	VIEWING NUMERICAL DAT	TO DO	3	BH
SCRUM-18	As a client I want to view the CPC so that I'm able to track the cost-per-click	VIEWING CALCULATED DA	TO DO	2	MC
SCRUM-19	As a client I want to view the CPM so that I'm able to track the cost-per-thousand impressions	VIEWING CALCULATED DA	TO DO	2	BH
SCRUM-16	As a client I want to view the CTR so that I'm able to track the click to impression ratio	VIEWING CALCULATED DA	TO DO	3	DS
SCRUM-17	As a client I want to view the CPA so that I'm able to track the cost to acquire a user	VIEWING CALCULATED DA	TO DO	3	AM
SCRUM-20	As a client I want to view the bounce rate so that I'm able to track the amount of money wasted for each ...	VIEWING CALCULATED DA	TO DO	3	P

ACTUAL
2
2
3
5
5
3
N/A
3
3
3
5

3.2. Next Increment

3.2.1. Burndown Chart

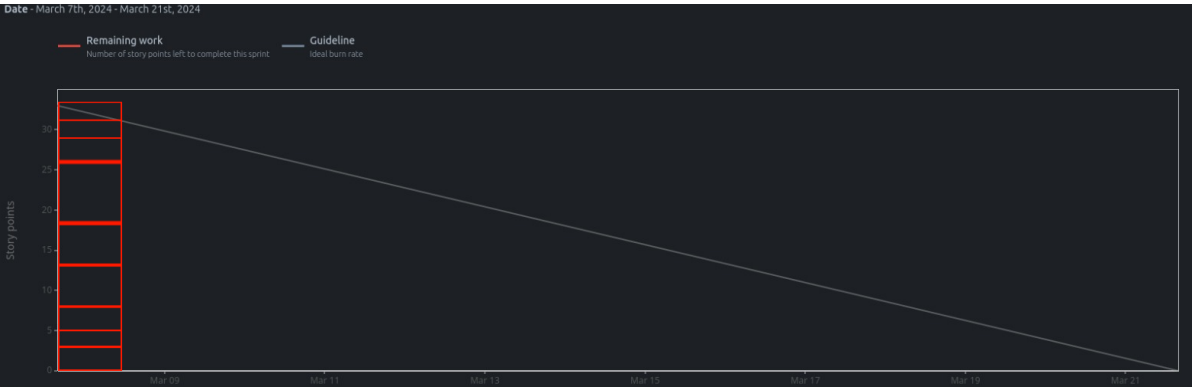


Figure 2: Day-zero burndown chart for increment 2

3.2.2. Sprint Plan

Please see our sprint plan for the upcoming increment (Figure 3). This has been made to reflect the increased levels of effort expected from the first increment, as well as taking into consideration the jobs of members outside of programming time (e.g. creating UML diagrams for the hand-in). Moreover, as we have already begun the implementation of metric graphs as a proof of concept, this story has been marked as such (shown as "in progress").

Graphing & Filtering Data 7 Mar - 21 Mar (8 issues)					28	2	0	Start sprint
SCRUM-22	As a client I want to view historical data so that I can optimise campaigns	GRAPHING DATA	IN PROGRESS	2	AM			
SCRUM-23	As a client I want to view metric charts to track the performance of my ad	GRAPHING DATA	TO DO	3	BH			
SCRUM-24	As a client I want to view multiple charts at once so that I can compare campaign data	GRAPHING DATA	TO DO	5	BH			
SCRUM-25	As a client I want to be able to see performance metrics per time or day or per day of the week so that I c...	GRAPHING DATA	TO DO	5	PJ			
SCRUM-27	As a client I want to filter the metrics and charts so that I can analyse my ad campaigns in greater detail	CONFIGURATION	TO DO	8	DS			
SCRUM-28	As a client I want to define how bounces are registered so that data is personalised to my liking	CONFIGURATION	TO DO	3	AM			
SCRUM-34	As a client I want to receive error messages so that I can troubleshoot issues (e.g. login failure)	INPUT / OUTPUT	TO DO	2	KC			
SCRUM-35	As a marketing agency member I want to receive error messages so that I can troubleshoot issues (e.g. lo...	INPUT / OUTPUT	TO DO	2	KC			

Figure 3: Sprint plan for increment 2