



Run Time Error

Mall-E
Release Plan

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Mall-E

APPROVALS

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REVISION HISTORY

Version	Date	Organization/Point of Contact	Description of Changes
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1. INTRODUCTION

This document aims to provide a guide for the release procedure and implementation of the mobile application Mall-E. The main strategy for our releases is to ensure that the development is in line with our Project Plan and add more features or fix bugs with every release. This release plan contains the release schedule and detailed process for every release. Moreover, it involves making assumptions, identifying potential risks, various constraints, and approaches used for the product release throughout the Software Development Life Cycle.

2. REFERENCED DOCUMENTS

The relevant documents which were referenced in this document are listed in Table 1 below.

Table 1: Referenced Documents

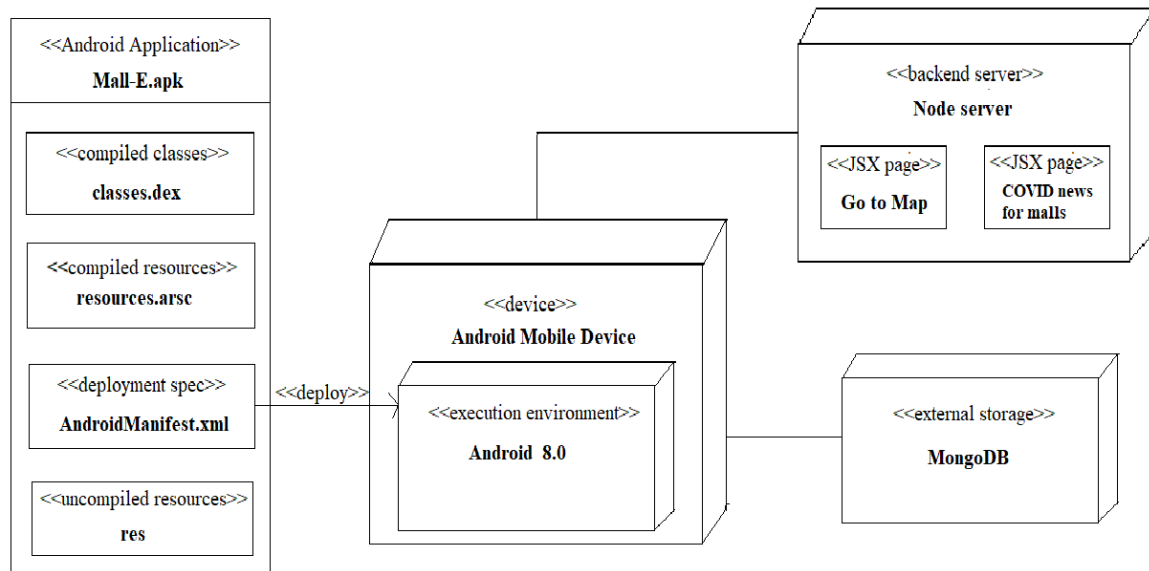
Document Name	Document Number	Issuance Date
Project Plan	1.0	Feb 21 th , 2021
Risk Management Plan	1.1	Feb 21 th , 2021
System Requirement Specifications	1.0	Feb 14 th , 2021

3. OVERVIEW

Mall-E is a mobile application that offers Crowd Density Tracking on every mall in Singapore. Our Crowd Density Tracking offers mall-by-mall, level-by-level and restaurant-by-restaurant crowd density. Side functionalities include waiting time for restaurants in that specific mall as well as the top 5 Covid-19 news articles that occurred in that specific mall.

The basis of Mall-E is to use the Best Time API as well as Google Popular Times API for Crowd Density Tracking and waiting times of restaurants respectively. Mall-E will be applying Machine Learning Algorithm to CCTV footages within the malls for level-by-level Crowd Density Tracking.

The following deployment diagram details the interactions between the main system and subsystems involved in Mall-E mobile application.



4. ASSUMPTIONS, CONSTRAINTS, RISKS

4.1. Assumptions

The following assumptions have been identified and must be refined during the project development life cycle:

Team Size

- All the project members have all the required skills for the completion of their tasks
- Each and every team member will commit to the project till completion

Budget/Funding

- The current budget for this project is sufficient and a quota for funding is provided later upon request.

Development

- The required dependencies and tools for development are readily available in the appropriate versions
- There will be no changes to the programming language, database server and development team used from the creation to the completion of the project.

Dependencies which that may affect the deployment of the system must also be considered. The following describes any systems or subsystems that may be impacted directly as a result of this Release Plan, as well as any related factors that can impact this Release Plan.

Mall-E

- The project is completely dependent on React Native, which is open-source software available for use during the entire project. Unexpected conversion into proprietary software will have an adverse effect on the entire project release.
- Besides, the project is heavily reliant on third-party APIs which include BestTime API, Google Maps API, Popular Times API, NewsAPI. Similarly, the conversion of any of the software into proprietary software will have an adverse effect on the entire project budget and release.

4.2. Constraints

Schedule Constraints

- The time allocated for the project Mall-E is only 4 months, right from the planning till deployment. The team members take full responsibility for making sure that the mobile application is released on time without compromising on the standard.

Budget Constraints

- With the limited budget, the software available for developing the mobile application is limited. Thus, to cope with this constraint, extensive research and pre-planning are necessary to find the most cost-effective software tools to enable us to build Mall-E without sacrificing security or performance.

External System Constraints

- React Native
- MongoDB
- BestTime API
- Google Maps API
- Popular Times API
- NewsAPI

4.3. Risks

Before releasing the software as a completed system, all potential risks must be identified, and a response strategy must be generated in response to the risks. This is crucial due to possible adverse impacts on stakeholders, which may hinder a successful deployment.

Table 2: Risk Table

Type of Risk	Potential Risk	Risk Mitigation Strategy
Technology	<ul style="list-style-type: none"> The database is unable to support as many users per second as expected The supported APIs server is down 	<ul style="list-style-type: none"> Upgrade database limits when the number of users increases Identify points of failure with monitoring and implement failure recovery strategy.
People	<ul style="list-style-type: none"> The important staff are unavailable during the crucial stages of development New staff lack experience related to the stack used in the project 	<ul style="list-style-type: none"> Conduct code reviews as a team to ensure that members understand each other's jobs Additional Training Ensure there is proper code documentation
Organizational	<ul style="list-style-type: none"> Change in the management team due to reconstruction of the company Reduction of the project budget due to an unexpected financial crisis 	<ul style="list-style-type: none"> Maintain clear cost breakdowns for the tools and manpower assigned.
Requirements	<ul style="list-style-type: none"> Functional requirements documented and functional requirements developed is different Major updates to functional requirements may delay the project schedule 	<ul style="list-style-type: none"> Derive traceable information to assess requirements change impact, maximize information hiding in the design Evaluate each requirement's importance to stakeholders and trade-off with better requirements
Estimation	<ul style="list-style-type: none"> Underestimation of the time required for the completion of the project. Underestimation of the storage for the software Underestimation of the rate of defect repair 	<ul style="list-style-type: none"> Identify the cause of delay and thereby, develop alternative paths or solutions.

5. RELEASE APPROACH

5.1. Rationale

The development of Mall-E is based on Incremental Development Cycle as mentioned in the Project Plan. Mall-E is developed using the Scrum lifecycle, which puts incremental development at its core. The team will be required to release every sprint with improvement made such as new features, security and bug fixes to enhance user experience and security. Thereby, this demands an efficient allocation of manpower and budget.

5.2. Release Strategy

Mall-E undergoes three main stages before the final product is being deployed. They are as follows :

- **Alpha Stage:** the product is partially completed and delivered for internal testing. The product in this stage does not contain all features and does not satisfy the release requirements.
- **Beta Stage:** the main functionalities of the application are developed for real-world testing.
- **General Availability Stage:** has all of the completed features has a stable, relatively bug-free final product.

5.2.1. Release Content

At each release stage of Mall-E, additional functionalities are added to each release. This section explores the features added at each iteration of development.

Table 3: Release Content Table

Alpha Release	
Task Description	Remarks
Create Mobile Application	Skeleton of the Mall-E mobile application is developed. This involves creating the mobile app through React Native and designing the basic pages for navigation and display.
Accounts	MongoDB database is created and linked to the React Native mobile application. This allows the storage of user account information and other dynamically generated data.

Beta Release	
Task Description	Remarks
Displaying Map	Main functionalities include the feature where a map of all the malls in Singapore is displayed including basic information.
Malls	This feature allows users to browse through the list of malls in Singapore and find out detailed information about crowd density and floor density. Moreover, users will be also be provided with a list of restaurants for a chosen mall and thereby, be able to view the average waiting time.

General Availability Release	
Task Description	Remarks
News Feed	To implement page will display users with the latest news regarding malls and Covid-19
Bookmark	This feature allows users to bookmark several malls for future use.

5.2.2. Release Schedule

The estimated duration of each release is given as follows :

- Alpha release: 2 Weeks
- Beta release: 3 Weeks
- General Availability release: 1 Week

5.2.3. Release Impacts

With the release methods that have been implemented, clients will be able to realize the major changes that have been made to the software from the Alpha stage to the General Availability stage with the added User management features. The Project Manager and the Release Manager work closely to ensure that all stakeholders have full transparency of the release schedule to avoid any miscommunication.

Additionally, the development team must ensure that all work is done within the scheduled timeframe without compromising on the product quality. If any bug or constraints is encountered in the older versions have to be fixed with the upcoming version releases.

5.2.4. Release Notification

The release notification for the following groups of stakeholders is specified in the table below. Notifications provided will be regarding the impending release or the successful release of Mall-E.

Table 4: Release Notification Table

Stakeholders	Notification method	Notification information	Notification timeframe
Developers	<ul style="list-style-type: none">• Meetings• Emails	Timeline for release, extensive information on bug fixes progress	After the release of the newer version is confirmed
Investors	<ul style="list-style-type: none">• Meetings	Moderate information on the costs incurred for the new release and the release timeline.	1 month before the release of a new version
Users	<ul style="list-style-type: none">• Official Website• Social Media	Brief information about user guide, new features and bug fixes	7 days before the release of the new version