NANYANG TECHNOLOGICAL UNIVERSITY
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CZ3002 Advanced Software Engineering Project:

Release Plan - CashTrack

Version 1.4

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REVISION HISTORY

Version	Date	Description of Changes
1.0	2 March 2021	Baseline Version Created
1.1	10 March 2021	Updated Assumptions & Constraints
1.2	18 March 2021	Refined Release Impacts & Strategy
1.3	20 March 2021	Created Release Notification Schedule
1.4	31 March 2021	Finalised Document

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1. INTRODUCTION

1.1 Purpose

The key purpose of this Release Plan (Version 1.4) is to provide a tactical document which captures and tracks all features of the CashTrack application scheduled for the next product release.

The objective is to guarantee that the execution and productization of the applications is in accordance with the latest versions of the project plan and development lifecycle. The Release Plan examines the imperative variables included within the product development and testing and guarantees successful migration for the product release.

1.2 Scope of Activities

The scope of activities aims to elaborate all aspects throughout the product development and release relevant to the release strategy devised for CashTrack. To that effect, the content entailed in this document includes all possible assumptions, current dependencies, inherent constraints, potential risks, and the strategy employed for the release approach.

1.3 Intended audience

The Release Plan aims to convey the details of the product release iteration entailed in this document. The intended audience of this Release Plan includes, but is not limited to, the following people:

- Lab Supervisor
- Product Owner
- Project Manager
- Scrum Master
- Development Team
- Quality Assurance Team
- Release Management Team
- Product Stakeholders

1.4 Prerequisites for the release

The pre-conditions the successful implementation of the product release plan are as follows:

- All system features required for release have been implemented in full by the Development Team.
- The complete system has been thoroughly tested and verified by the Development Team along with the Quality Assurance Team comprising Software Test Engineers.
- Each feature must have passed through a series of confirmatory unit tests before being released.
- All system software characteristics have been assessed, found to match set quality

benchmarks and successfully passed all Quality Reviews.
- Conclude Acceptance Testing (UAT) with approval from Change Management Coordinator.
- All relevant system risks have been enumerated, studied and mitigated appropriately
- No unresolved items adversely affecting the product release.
- Finally, the Product Owner has approved of the new release features and their implementation.

1.5 Evolution of Release Plan

As the software development lifecycle of CashTrack follows an Agile methodology, each development sprint shall result in an increment that shall be pushed to production after appropriate reviews and quality checks.

As the nature of these CashTrack product releases are highly incremental and rapid in being rolled out to market, this Release Plan document shall also be updated in a similarly rapid manner parallely to the scheduled release. This updation workflow is established with the aim of maintaining consistent documentation for the product that correctly reflects all relevant information regarding its releases at any given time.

Consequently, this shall allow all teams (Design, Development, Quality Management, Testing etc.) to effectively synchronize with one another in the fast paced project environment. Hence, this facilitates more seamless, collaborative and successful product releases.

2. REFERENCED DOCUMENTS

The CashTrack Release Plan has been drafted in codependence with multiple other project specific documents created during the software development life cycle. To that effect, the complete set of documents referenced within this Release Plan are as follows:

Document Name	Document Number	Issuance Date
Project Proposal	1.0	February 4, 2021
System Requirement Specification	1.2	February 11, 2021
Quality Plan	1.5	February 14, 2021
Project Plan	1.3	March 14, 2021
Risk Management Plan	1.3	March 18, 2021
Configuration Management Plan	1.2	March 24, 2021

Table 1: *Referenced Documents*

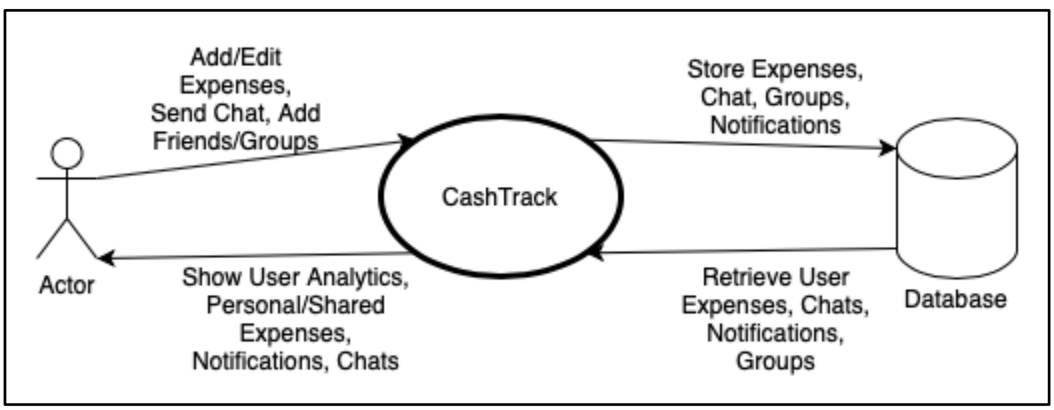
3. OVERVIEW

CashTrack is a web dashboard that provides an integrated platform solution that enables users to collectively record, analyse and settle their monetary transactions with one another.

Some key features provided to users are that they may track their personal expenses, add shared expenses, chat with friends or even view their expenditure data in graphical representations such as pie charts and line graphs.

Moreover, the users may add their personal or shared expenses with the proper amount, description and tag (travel, entertainment, food, shopping or others). This expense record is then saved in the database and a notification is sent to all the involved parties. This expense record is then used to show the user analytics on the total expenditure, spending by category in the month and also total money in and out in the given month.

Finally, the users can also add friends, create groups and send chat messages to their friends using CashTrack.



The context diagram above shows the CashTrack application interacting with external components such as the user and database.

4. ASSUMPTIONS, CONSTRAINTS, RISKS

4.1. Assumptions

The core assumptions established during the product development of the CashTrack application are as follows:

- The users have access to any internet enabled device with a web based browser.
- All Shared Expense Records shall always be authored by the Payee.
- The CashTrack application platform is in no way legally binding or enforced, as the resolution of all shared expense records are based on mutual trust between the involved parties.
- Free, non-proprietary services (like MongoDB, node.js, Google OAuth) used for development of CashTrack maintain their terms of use.
- Releases entailing feature improvements and additions shall be incrementally rolled out in sync with users' feedback.
- CashTrack remains open source and free for public use, under the terms of software copyright to prevent any unauthorized copying of product software.

4.2. Constraints

Some key constraints encountered during the product development of the CashTrack application are as follows:

- CashTrack does not offer an integrated payment service, rather it only provides a platform to record all transactions conducted on external platforms.
- Users cannot access the CashTrack application without an internet enabled device and a web browser.
- Users require a Google Account (OAuth) to sign up with the CashTrack application, and access its features. Other authentication measures have not been implemented as of yet.
- Due to project budget and scheduling constraints, the initial prototype release of the CashTrack product, which implements all basic functionalities, must be deemed as the final product deployment.

4.3. Risks

Being a multifaceted and dynamic activity, a product release is intrinsically associated with multiple risks which might cause difficulties in executing a Release Plan. A comprehensive list of the key risks faced by the incremental rollouts of the CashTrack project, are as follows:

	Risk Description	Severity	Mitigation / Contingency Plan
1	Software and hardware components used for development are not compatible	Catastrophic	Research extensively prior on the compatibility issues between components to be used as well as to ensure portability
2	Product Owner is unavailable during time critical period	Serious	In the event that the Product Owner is unavailable at a critical stage of the release, the stakeholders may be consulted as the next best alternative. As the Product Owner's role is to enforce the vision of the product and its interactions with the market, the stakeholders shall be in a similar capacity to serve the same role.
3	Possibility of single point failures, such as data corruption or tool used for coding malfunctions	Serious	Have modularity and portability in design so that modules can be independent shifted around
4	Restructuring of organization such that separate teams are now working on the system	Tolerable	Use of source code management and version control via Github
5	Contrast between functional requirements documented and functional requirements developed.	Tolerable	Use of collaboration tools like Jira to ensure that the functional requirements developed are consistent with the ones which were documented
6	Inaccurate estimations that are either overly optimistic or unrealistic	Tolerable	Break the work down into smaller pieces/activities then perform estimation for a more accurate and realistic estimation

7	Deployment Resources Fail	Catastrophic	Deployment resources must be tested 1 week prior to the scheduled release date in order to fix any bugs in the resource. Moreover, backup servers and other required resources should always be arranged to mitigate such risks.
8	Quality Assurance Team is overloaded with work and hence unavailable	Serious	Suitable scheduling of releases must be in place in order to avoid work overload for the QA Team.
9	Product Release clashes with the release of a competing platform	Tolerable	A release clash of such a nature shall have an adverse impact on the projected market success of the product, due to competing for the users' attention. However, this risk may be managed by carefully studying market dynamics and relevant competitors and their products before a launch.

5. RELEASE APPROACH

5.1. Rationale

CashTrack will certainly go through multiple stages of improvements such as bug fixes that arise during testing and development changes such as design / feature changes throughout the design lifecycle of the application till the first release of the product. Moreover, CashTrack will also be constantly updated during the maintenance stage to resolve any further issues that are detected till the final release of the product where all issues have been resolved and the application can function as intended.

5.2. Release Strategy

CashTrack rollout will be divided into multiple stages according to application features and functionalities that users can use. Features and functionalities will be grouped and rolled out in different stages.

5.2.1. Release Content

- **First Stage Release**

  Account Registration, System Login and System Logout, Creation / Updating / Deleting of Personal Expense Record and Notification System.

- **Second Stage Release**

Setting Expense Limit (including notification when approaching expense limit), Inviting Friends to CashTrack, Add/Delete Friends, Friends List, Creating/ Updating / Deleting Shared Expense Records (Phase 1: Manually Splitting of shared expense bill with **one** other person).

- **Third Stage Release**

  Creation/Updating/Deleting of groups (Adding friends to group), Friends Details, Add/Delete Friends, Friends List, Creating/ Updating / Deleting Shared Expense Records (Phase 2: Additional split bill options, comments and multi-person / group Shared Expense Record).

- **Fourth Stage Release**

  Dashboard expense data analytics and group details.

- **Final Stage Release**

  User chat messaging system.

5.2.2. Release Schedule

- **1.0 First Stage Release (Initial Release)**
    - Users will be able to Register for CashTrack using Gmail
    - Users will be able to Sign In and Sign Out of CashTrack
    - Users will be able to Create, Update and Delete Personal Expense Record [Inputs: Name of expense record, Category, Amount, Date of expense record]
    - Users will be able to view their account details [Name, Email]
    - Users will be able to view FAQ page
    - Users will be able to view About page

    Estimated Duration: 1 Sprint (2 Weeks)

- **2.0 Second Stage Release (Extended Features)**
    - Notification System for CashTrak
    - User will be able to set a Personal Expense Limit [Notification will be received when approaching limit]
    - Users will be able to invite their friends to use CashTrack
    - Users will be able to Add friends to their friend list and Delete friends from their friend list
    - Users will be able to view their friends list
    - Users will be able to Create, Update and Delete Shared Expense Record [Only Manual Splitting of shared expense bill with **one** other person]
    - **Update FAQ [new features for Personal expense limit, Notifications, Friends, Shared Expense Record]**

    Estimated Duration: 2 Sprint (4 Weeks)

- **3.0 Third Stage Release (Extended Features)**
    - Users will be able to Create, Update and Delete a Group [users will be able to add friends into the group and also remove friends from the group]
    - Users will be able to view transaction details between their friends [Transaction Summary Graph and Latest Shared Expense Records]
    - **Update Feature for Shared Expense Record:** Users will now also be able to add more than one friend OR Group to the shared expense record and also split the shared expense by Shares, Percentage, Custom and Currency Exchange.
    - **Update FAQ [new features for Shared Expense Record and Groups]**

    Estimated Duration: 2 Sprint (4 Weeks)

- **4.0 Fourth Stage Release (Extended Features)**
    - Users will be able to view their Personal and Shared Expenses analytics data at the Dashboard page of CashTrack in the form of Line Charts and Pie Charts, detailing their spending by categories and money flow throughout the year

- Users will be able to see their Total Spending, Money In, Money Out, Notification Indicator, Monthly Personal Expense Limit at the Dashboard page of CashTrack
- Users will be able to view their transaction information with members of the group and also the details of the group [Transaction Summary Graph, List of Group Members, Latest Shared Expense Records]
- **Update FAQ [new features Personal and Shared Expense analytics data] and About pages**

Estimated Duration: 1 Sprint (2 Weeks)

- **5.0 Fifth Stage Release (Extended Features)**
  - Users can now chat with friends via the CashTrack messaging system
  - **Update FAQ [new chat feature] and About pages**
  - All components of CashTrack completed

  Estimated Duration: 1 Sprint (2 Weeks)

5.2.3. Release Impacts

- **First Stage Release**

  Register Interface, Login Interface, Personal Expense Interface, Account Interface, FAQ Interface, About Interface and Database.

- **Second Stage Release**

  Personal Expense Limit Interface, Invitation Interface, Friend List Interface, Shared Expense Interface, Notification System and Database

- **Third Stage Release**

  Group Interface, Shared Expense Interface and Database

- **Fourth Stage Release**

  Dashboard Interface, Group Interface, FAQ Interface, About Interface and Database

- **Final Stage Release**

  Chat Interface, FAQ Interface, About Interface and Database

5.2.4. Release Notification

The following table details the mode of communication to respective stakeholders depending on release stages:

Stakeholders	Release stage(s)	Mode of Communication
Project Sponsors	All	Physical/ Online Meeting Email Phone calls Official Website
Development Team	All	Physical/ Online Meeting Business communication platform Email Phone calls
Legal Department	All	Physical/ Online Meeting Business communication platform Email
Target Customers	All	Official Website Social Media platforms Email
General Public	All	Official Website Social Media platforms Email

6. APPENDICES

6.1 Glossary

Product Owner	The Product Owner is a member of the Agile Team responsible for defining Stories and prioritizing the Team Backlog to streamline the execution of program priorities while maintaining the conceptual and technical integrity of the Features or components for the team.
Software Release	A software release is the final version of the software released to the end-users after further enhancements and bug fixes.
Scrum	Scrum is an agile development methodology used in the development of Software based on an iterative and incremental processes.
Sprint	A sprint is a short, time-boxed period when a scrum team works to complete a set amount of work.

6.2 Acronyms

FAQ	Frequently Asked Questions
QA	Quality Assurance
SDLC	Software Development Lifecycle
UAT	User Acceptance Testing