Wei Gen - Project Portfolio

Introduction

[github]

Hi! My name is Wei Gen.

I am currently a second year student in NUS School of Computing, pursuing a Bachelor of Computing (Honours).

This project portfolio page aims to document the contributions I have made in the development of FinSec, a project that my team and I completed for the module CS2103T. This project has definitely been greatly beneficial to my own learning and self-development in becoming a more competent software engineer.

PROJECT: FinSec

Overview

FinSec is an application that was created with the end goal of aiding Financial Secretaries of any organisation in managing their financial data, mainly their contacts, claims, incomes and budget. It is a Command Line Interface (CLI) based tool to cater to computing professionals who are highly adept at typing but also provides a Graphical User Interface (GUI) interface for any users *(like you!)* to easily view interact with FinSec.

Role

My main role was to act as the Team Lead for the project, completing team tasks for the project and managing general tasks for the team members. As I was the only one who has been in the position of our target audience and could best understand their user requirements, so I was also the one to set the directions of the project.

I also developed the Claims feature *(including logic, storage and model)*, as well as adding the association between Claims and Contacts. I also created the documentation and tests that came along with the features.

Summary of contributions

- **Major enhancement**: added the **Claim feature**
  - **What it does**: To allow users to add Claim entries into the FinSec application and track their claim entries.
  - **Justification**: The `Claim feature` is a vital feature to the FinSec application since that the majority of organisations and clubs have claims to keep track of.
  - **Implementation**: The Person class in Address Book 3 (AB3) is remodelled to resemble a claim entry *(with additional attributes of ID, Description, Amount, Date and Status)*.
  - **Highlights**: The implementation of this feature is fairly manageable since that it is an adaptation of the Person class. However, there is much more coupling compared to the Person class, thus it is more complex. There are also more stringent testing required, such as `Date` parsing.
- **Minor enhancement**: added the **Approve and Reject Claim features**
  - **What it does**: This feature allows users to approve or reject pending claims.
  - **Justification**: Claims can have different statuses, and `Budget` will behave differently depending on their statuses.
  - **Implementation**: ApproveClaimCommand and RejectClaimCommand will check whether the claim chosen is a PendingClaim, and only if it is can its status be approved or rejected respectively.
- **Minor enhancement**: added the **association between Claims and Contacts**
  - **What it does**: Adding a claim into the app's list of claims will add the claim into the associated contact's list of claims as well.
  - **Justification**: Each claim added is associated to a contact. The user will be able to view all the claims associated to a contact when viewing them using the CheckCommand.
  - **Implementation**: During the addition of a claim, the app checks if there is a contact with the entered name. Only if there is an existing contact for the claim will the command be executed. It also adds the Claim ID to the contact's list of claims.
  - **Highlights**: I have also added a table to the IndividualContactWindow for the user to view the details of every claim of each contact easily.
- **Code contributed**: [All commits][Project Code Dashboard]
- **Other contributions**:
  - Project management:
    - Managed the release of version `v1.1` on GitHub

    - Created GitHub organisation, team repository and managed access for the team.
    - Integrated various build services into the team repository.
  - Documentation
    - I made improvements to the Developer’s Guide and User Guides: #232, #195, #182
  - Community
    - I conducted reviews on other team’s PR to give suggestions and constructive comments: #4,
    - I also reported bugs and potential flaws in other teams' project to help prepare them for the demo: #8, #5, #4
  - Enhancements to existing features:
    - Wrote additional tests for existing features to increase coverage (Pull requests #370, #356, #346)
  - Tools:
    - Integrated Travis, AppVeyor and Netlify into our project.

Contributions to the User Guide

Given below are sections I contributed to the User Guide. They showcase my ability to write documentation targeting end-users.

Adding a claim : `add_claim`

To add a claim to the claim list.

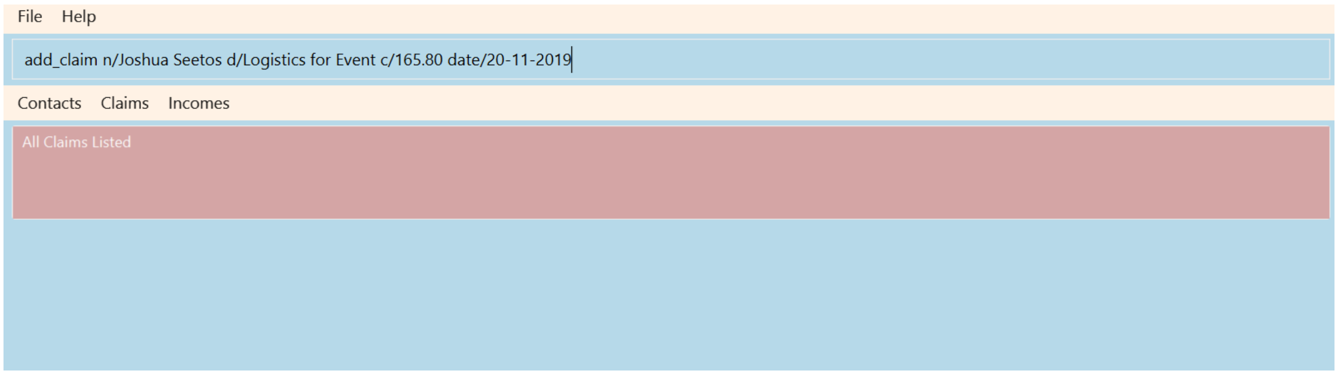
Keyword: `add_claim`

Format: `add_claim n/NAME d/DESCRIPTION_OF_CLAIM c/AMOUNT date/DATE [t/TAG]`

Example:

```
add_claim n/Lee Wei Gen d/Sports Equipment c/115.2 date/29-12-2019 t/Sports
t/Equipment
```

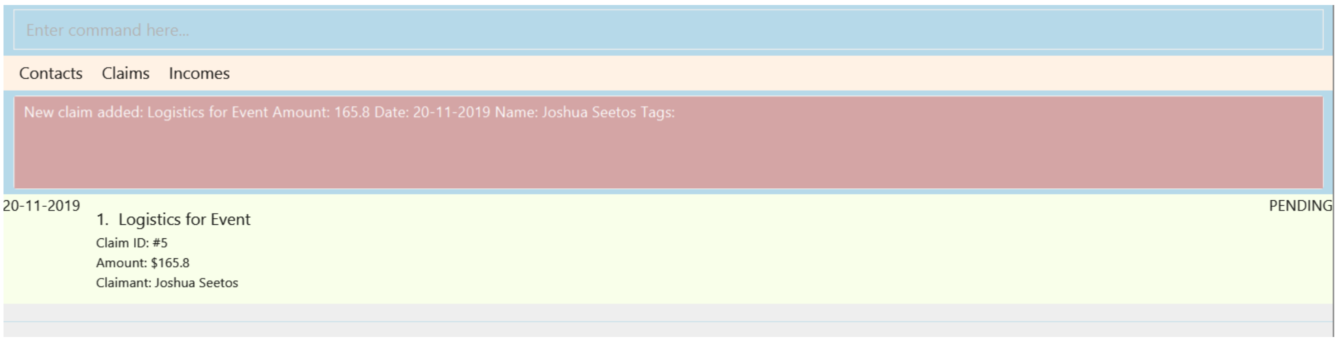
Figure 3.4.1 and Figure 3.4.2 shows what you can expect to see after adding a claim.



add_claim n/Joshua Seetos d/Logistics for Event c/165.80 date/20-11-2019

All Claims Listed

Figure 3.4.1: Type in the command to add claim.



New claim added: Logistics for Event Amount: 165.8 Date: 20-11-2019 Name: Joshua Seetos Tags:

20-11-2019 PENDING
1. Logistics for Event
Claim ID: #5
Amount: $165.8
Claimant: Joshua Seetos

Figure 3.4.2: Result after addition of claim.

Warning

- `AMOUNT` should be up to 2 decimal places only.
- `DATE` should be a valid date in the form of "dd-MM-yyyy"*(eg. 29-02-2019 not valid)*.
- A contact must already exist with the inputted `NAME` *(if not who is claiming it?)*

Approving a claim : `approve`

To approve a claim at the specified `INDEX`.

Keyword: `approve`

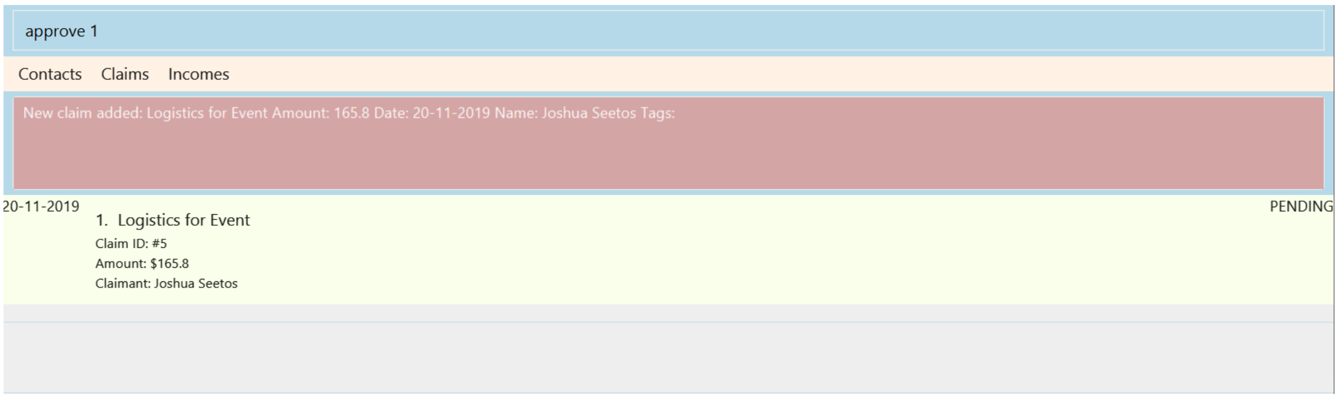
Format: `approve INDEX`

Example:

```
approve 1
```

The above example approves the first claim in the claim list.

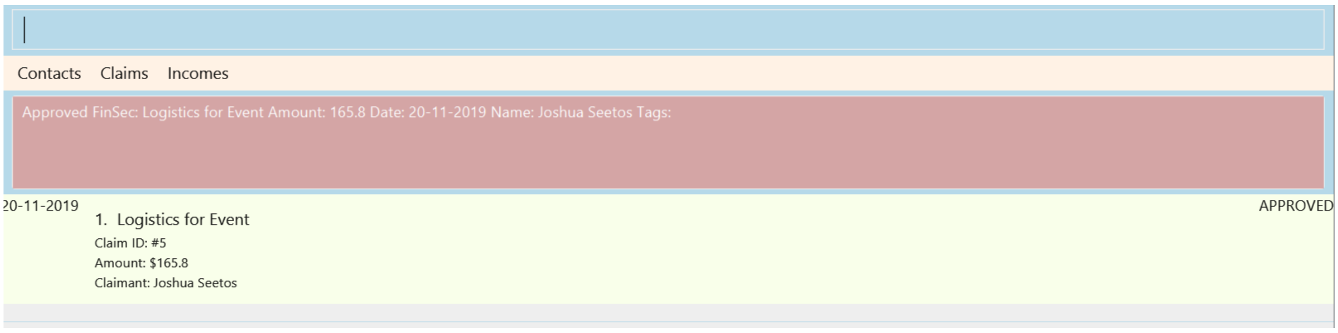
Figure 3.5.1 and Figure 3.5.2 shows what you can expect to see after approving a claim.


approve 1

New claim added: Logistics for Event Amount: 165.8 Date: 20-11-2019 Name: Joshua Seetos Tags:

20-11-2019 PENDING
1. Logistics for Event
Claim ID: #5
Amount: $165.8
Claimant: Joshua Seetos

Figure 3.5.1: Type in the command to approve claim.



Approved FinSec: Logistics for Event Amount: 165.8 Date: 20-11-2019 Name: Joshua Seetos Tags:

20-11-2019 APPROVED
1. Logistics for Event
Claim ID: #5
Amount: $165.8
Claimant: Joshua Seetos

Figure 3.5.2: Result after approving the claim.

Warning

- The claim list must be currently displayed.
- Claim at the specified `INDEX` must be a pending claim.
- `INDEX` refers to the index number shown in the displayed claim list.
- `INDEX` **must be a positive integer** 1, 2, 3, …, and cannot be larger than the maximum index of the displayed claim list.

Rejecting a claim : `reject`

To reject a claim at the specified `INDEX`.

Keyword: `reject`

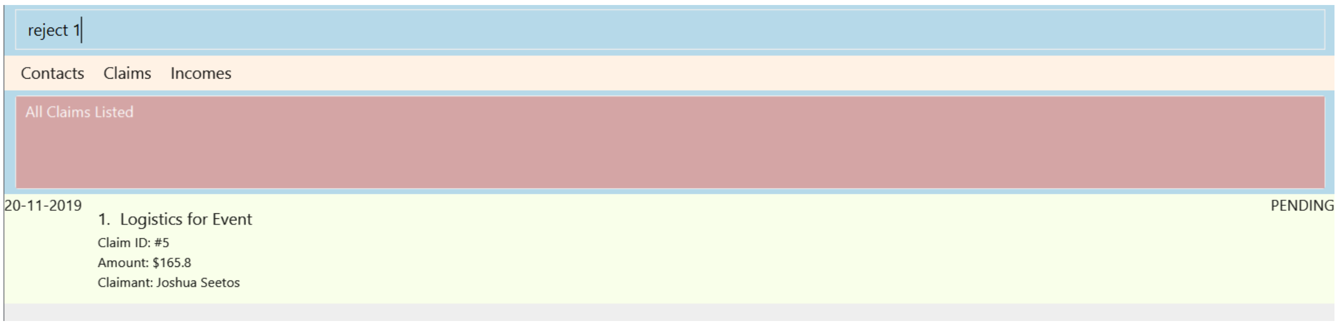
Format: `reject INDEX`

Example:

```
reject 1
```

The above example rejects the first claim in the claim list.

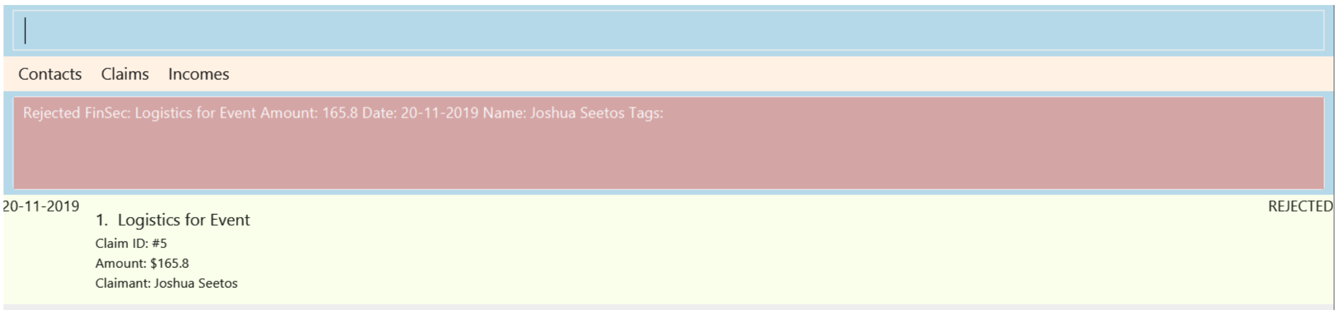
Figure 3.6.1 and Figure 3.6.2 shows what you can expect to see after rejecting a claim.



All Claims Listed

20-11-2019 PENDING
1. Logistics for Event
Claim ID: #5
Amount: $165.8
Claimant: Joshua Seetos

Figure 3.6.1: Type in the command to reject claim.



Rejected FinSec: Logistics for Event Amount: 165.8 Date: 20-11-2019 Name: Joshua Seetos Tags:

20-11-2019 REJECTED
1. Logistics for Event
Claim ID: #5
Amount: $165.8
Claimant: Joshua Seetos

Figure 3.6.2: Result after rejecting the claim.

Warning

- Warning as per **Approve** command!

Contributions to the Developer Guide

Given below are sections I contributed to the Developer Guide. They showcase my ability to write technical documentation and the technical depth of my contributions to the project.

Claim feature

`Claim` is meant to model a claim made by a person. It has the following fields: `Id`, `Description`, `Amount`, `Date`, `Name` and `Tags`.

Adding a Claim

Overview

The `add_claim` command allows for admins to register `Claims` into `FinSec`.

The format for the `add_claim` command is as follows:

```
add_claim n/<NAME> d/<DESCRIPTION> c/<CASH AMOUNT> date/<DATE> [t/<TAG>]
```

The add claim `add_claim` mechanism is facilitated by `AddClaimCommand` and `AddClaimCommandParser`, taking in the following input from the user: `Description`, `Amount`, `Date`, `Name` and optionally `Tags`, which will construct `Claim` objects.

Implementation

Figure 9 is an activity diagram that models the workflow of the addition of a claim.

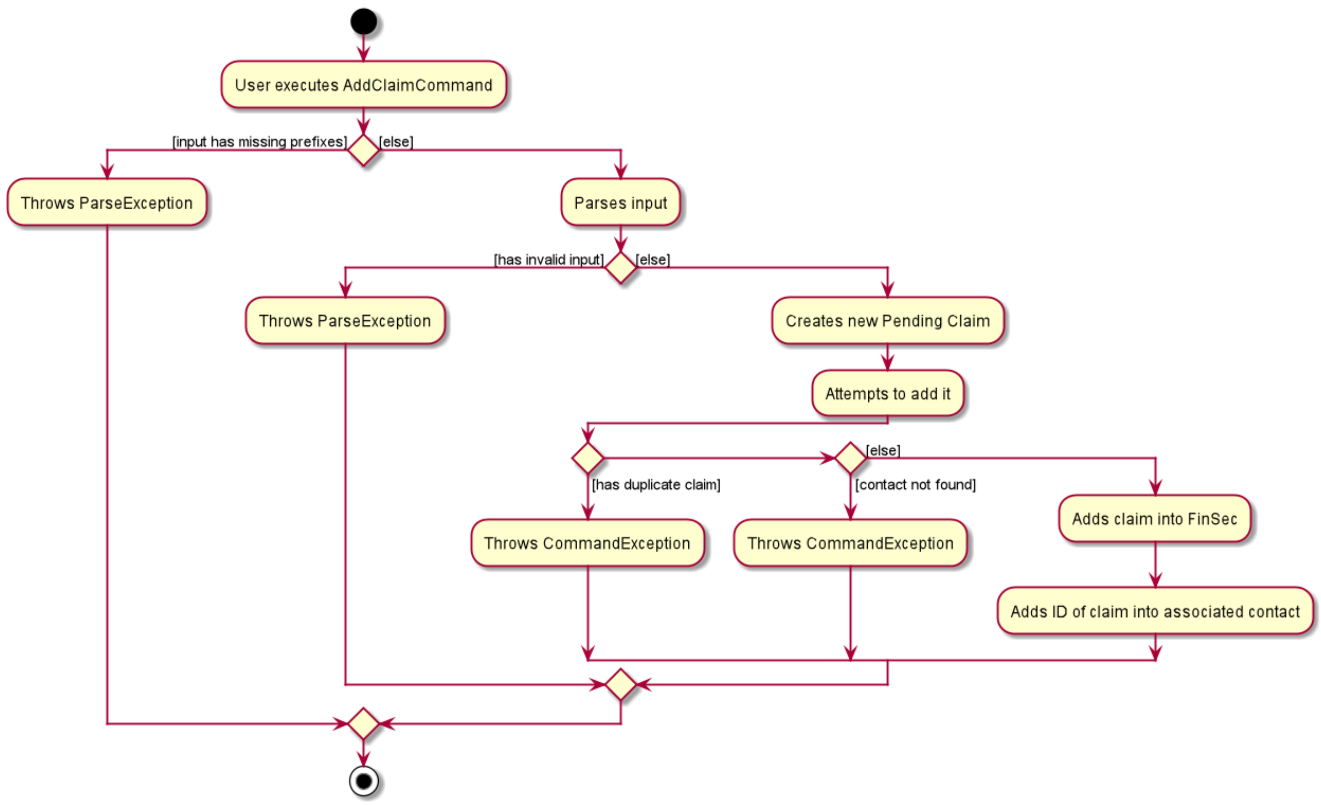


Figure 1. Add Claim Command Activity Diagram

Figure 10 and 11 shows the sequence diagrams in executing the `AddClaimCommand`.

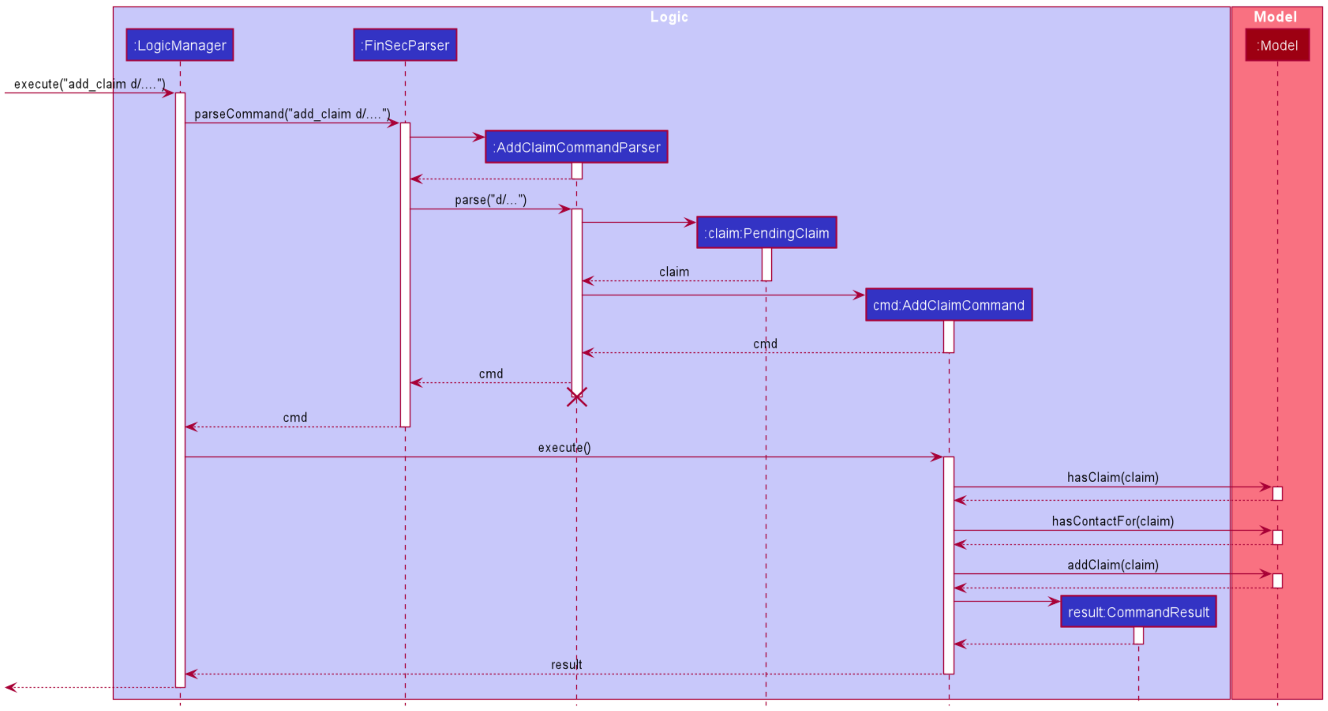


Figure 2. Add Claim Command Sequence Diagram

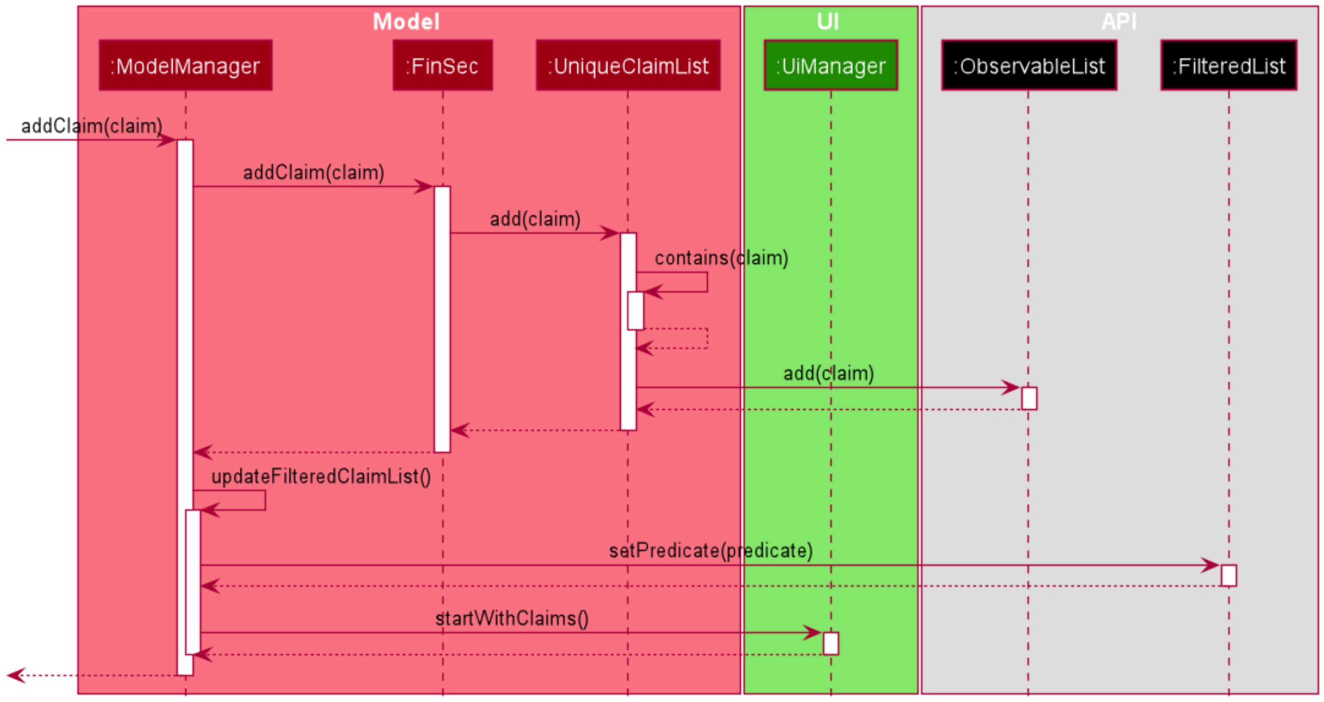


Figure 3. Add Claim Command Sequence Diagram (extension)

- Upon calling for the command, the `AddClaimCommandParser#parse()` will be executed:
  - This operation takes in a String input from the user that will create `Claim` objects based on the prefixes 'd/', 'c/', 'date/', 'n/' and 't/'. The String value after the individual prefixes will create the respective object: d/`description`, c/`amount`, date/`date`, n/`name` and t/`tags`. A regex validation check will be imposed upon the creation of each argument. Any checks that fails the validation would prompt the user on the failed component.
  - Each of the parameters will be checked whether they are valid:
    - `amount` uses `ParserUtil#parseAmount()` to ensure that cash amount would only contain

numbers and a maximum of 2 decimal places.

    - `date` uses `Date#isValidDate()` to ensure that the date entered is in the correct format of DD-MM-YYYY. The date also has to be a valid date *(29-02-2019 is invalid but 29-09-2016 is valid)*. An example of validation in code is shown below.

```
public static final String VALIDATION_REGEX = "(31[\\-.](0[13578]|1[02])[\\
-.](18|19|20)[0-9]{2})|((29|30)[\\-.](01|0[3-9]|1[1-2])[\\-.](18|19|20)[0-9]{2})|((0[1
-9]|1[0-9]|2[0-8])[\\-.](0[1-9]|1[0-2])[\\-.](18|19|20)[0-9]{2})|(29[\\-.](02)[\\
-.](((18|19|20)(04|08|[2468][048]|[13579][26]))|2000))";
public static boolean isValidDate(String test) {
    return test.matches(VALIDATION_REGEX);
}
```

- After the validation checks are completed successfully, a `Claim` object will be constructed with `Id`, `Description`, `Amount`, `Date`, `Name` and `Tags` as the parameters.
- `AddClaimCommandParser` will then return an `AddClaimCommand` object with `Claim` as its attribute.
- `AddClaimCommand#execute` will check against all existing contacts against the input `name` to make sure the contact exists:

```
@Override
public CommandResult execute(Model model) throws CommandException {
    requireNonNull(model);
    if (model.hasClaim(toAdd)) {
        throw new CommandException(MESSAGE_DUPLICATE_CLAIM);
    }
    if (!model.hasContactFor(toAdd)) {
        throw new CommandException(MESSAGE_CONTACT_NOT_FOUND);
    }
    model.addClaim(toAdd);
    return new CommandResult(String.format(MESSAGE_SUCCESS, toAdd));
}
```

Example

Given below is an example usage scenario of how `add_claim` mechanism behaves at each step.

Step 1: The user executes:

```
add_claim n/Melissa d/Logistics for Sports Day c/150.60 date/21-12-2019
```

This is intended to add a `Claim` of $150.60 for Logistics for Sports Day by Melissa.

Step 2: `LogicManager` uses `FinSecParser#parse()` to parse input from the user.

Step 3: `FinSecParser` determines which command is being used and creates the respective parser. In this case, `AddClaimCommandParser` is being created and the user's input will be passed in as a parameter.

Step 4: `AddClaimCommandParser` will do a validation check on the user's input before creating and returning a `AddClaimCommand` object with `Claim` as its attribute.

Step 5: `LogicManager` will execute `AddClaimCommand#execute()`, checking whether there is an existing Claim and also whether there is an existing contact for the claim, then adding the `PendingClaim` into the `Model` which is handled by the `ModelManager`.

Step 6: During the addition of claim into the `UniqueClaimsList` in `FinSec`, `FinSec#addClaimIntoContact` will also be called, adding the `Id` of the claim to the associated contact's `claims`.

Step 7: `AddClaimCommand` will return a `CommandResult` to the `LogicManager` which will then be returned back to the user.

During the design of our `add_claim` function, specifically its association with `Contacts`, we considered other alternatives as well.

Table 1. add_claim alternatives

Design Consideration	Pros and Cons
Adding the claim into contact by its Id	**Pros** : Since each claim has an unique Id, it can easily be retrieved from `UniqueClaimsList` *(returned from* `FinSec#getClaimList()`*)*. This reduces coupling when the claim is to be changed *(eg. gets approved)*. **Cons** : Every time we retrieve a claim using its `Id`, we have to search through the whole `UniqueClaimsList` to find the associated claim. As the list gets bigger and the more claims we have to search for an individual contact, this may take more time.
Adding the claim into contact by its object	**Pros** : This allows the claim to be stored inside the contact itself, thus is easily accessible. **Cons** : It is more difficult ensuring that both the same claim in the contact and in the `UniqueClaimsList` remains exactly the same to each other when one of them is changed.

We have decided to opt for the first option primarily because it reduces the number of potential bugs and the complexities involved. Moreover, as we are trying to push a Minimum Viable Product, the implementation is still fast enough for small-scale organisations to pick up our app and use it, minimising the cons.

Approving a Claim

This feature allows the user to approve a `PendingClaim` from the `UniqueClaimList` through its index.

The approve claim feature is facilitated by the `ApproveClaimCommandParser` and the `ApproveClaimCommand`.

The `ApproveClaimCommand` is part of the logic component of our application. It interacts with the model and storage components of our application.

Rejecting a Claim

This feature allows the user to reject a `PendingClaim` from the `UniqueClaimList` through its index.

The approve claim feature is facilitated by the `RejectClaimCommandParser` and the `RejectClaimCommand`.

The `RejectClaimCommand` is part of the logic component of our application. It interacts with the model and storage components of our application.