

Intelligent Claims System

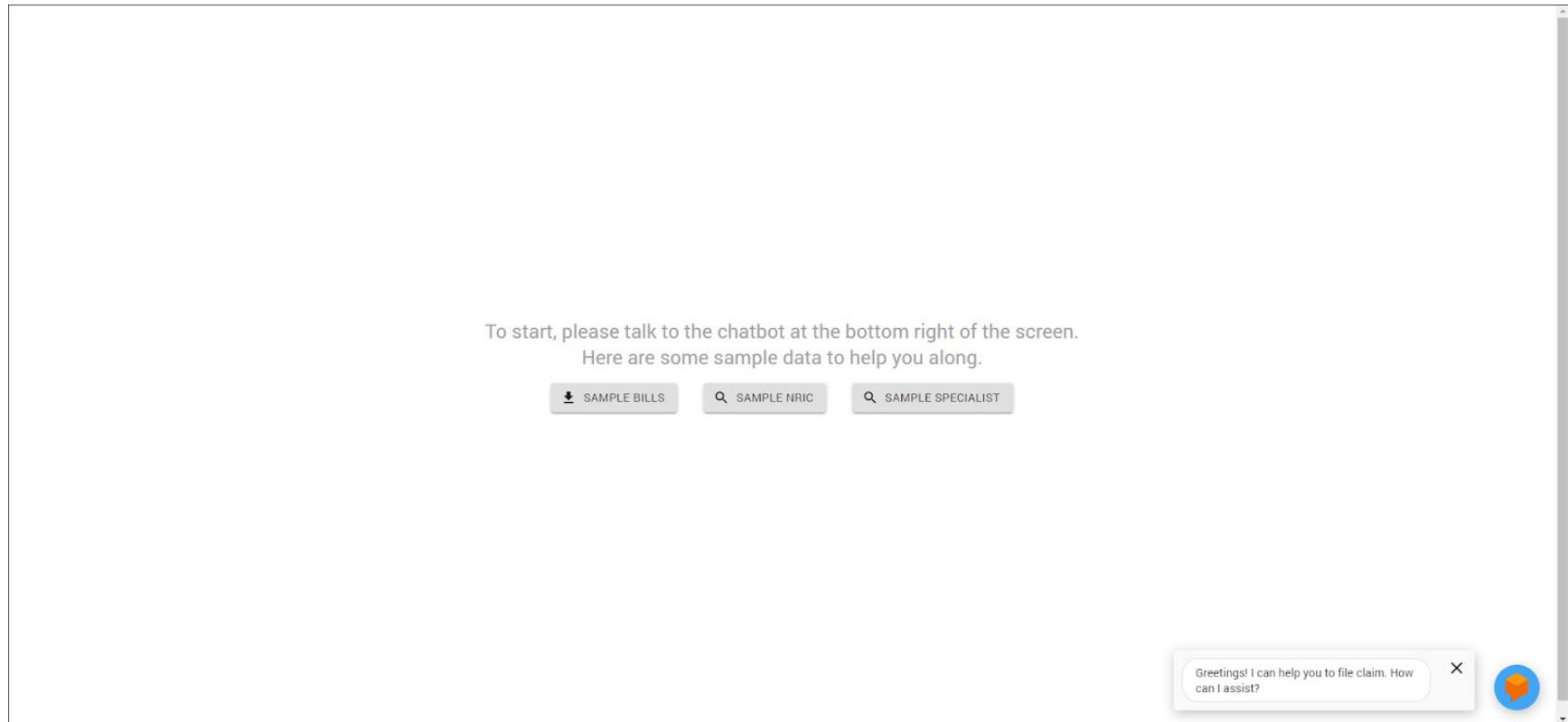
User Guide

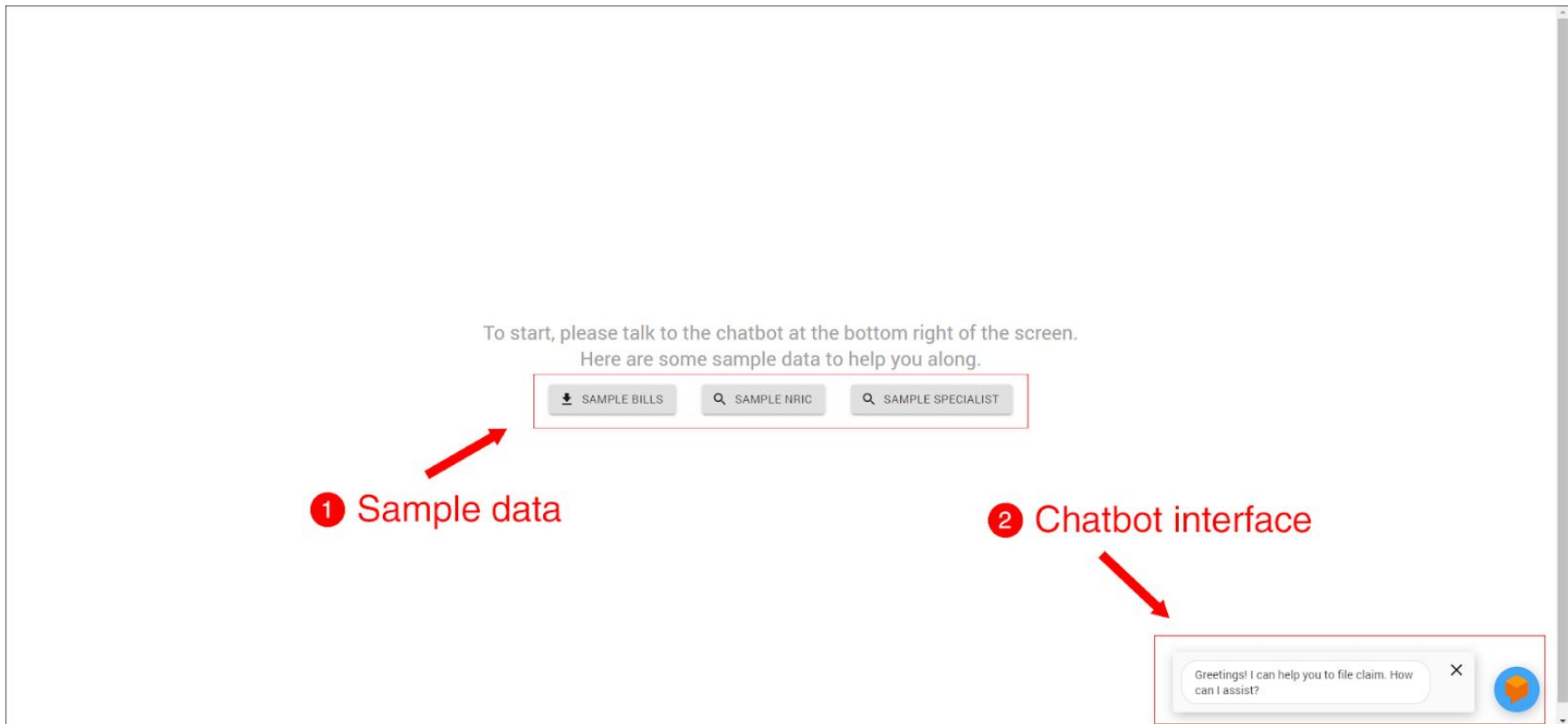
1. Chatbot

Once the application is running, the chatbot can be accessed by going to “<http://127.0.0.1:5001>” on your browser. Note that this assumes that the Docker host is 127.0.0.1. It may differ based on your configuration.

1.1 Overview

You should see this when you land on the page





1.1.1 Sample Data

These are data, like valid NRIC numbers, and specialists that you will need in order to complete a claim submission.

Sample Bills

During the claim process, you will be asked to upload your bill. For the scope of the project, we only support a fixed number of formats for bills. This contains a zip file of supported bills.

Sample NRIC

These are NRIC numbers that are associated with insurance policies in the system. When prompted, pick any one of these NRICs to enter.

Sample Specialist

These are known specialists within the system. When prompted for a specialist name or doctor, pick any one from this list.

1.1.2 Chatbot Interface

This is the chatbot interface, where you talk to the bot.

1.2 Sample Chat Flow

Here is an example of how a typical flow looks like. Note that the flow may differ based on user input.

Bot:

Hello there! Do you know that you can file pre and post hospitalisation claim here with me?

You can say "I want to submit a claim" to start the claim process.

User:

I want to submit a claim

Bot:

Can I have your NRIC number to identify your policy?

Note: you can retrieve a list of valid NRICs from the sample data provided.

User:

S9252052M

Bot:

Please enter the numeric OTP sent to the mobile number registered with your policy account.

Note: This is only simulated. You can enter any input here.

User:

123456

Bot:

Thank you Miracle White for the OTP verification. Are the bills related to earlier hospitalisation, surgery, dialysis, or cancer treatment?

User:

Yes

Bot:

Miracle White, Have you paid these bills in full?

User:

Yes

Bot:

Please prepare and upload your final bill and receipts, with supporting medical report and, bank statement for claim payment

A popup will appear, to prompt you to upload your bill. Upload one of the bills from the sample data provided.

Bot:

Please provide a bit more information about this bill. For example: Stitch removal, or physiotherapy

User:

Ok

Bot:

Can you provide the name of specialist, or doctor name you have visited for this claim?

Note: you can retrieve a list of valid specialists from the sample data provided

User:

Dr Goh

Bot:

When is the admission date of the related earlier hospitalisation?

User:

Last tuesday

Bot:

Claim submitted. Reference: 141260. This acceptance is subject further assessment. Additional information may be required for claim approval.

The system will then have received your claim.

2. Dashboard

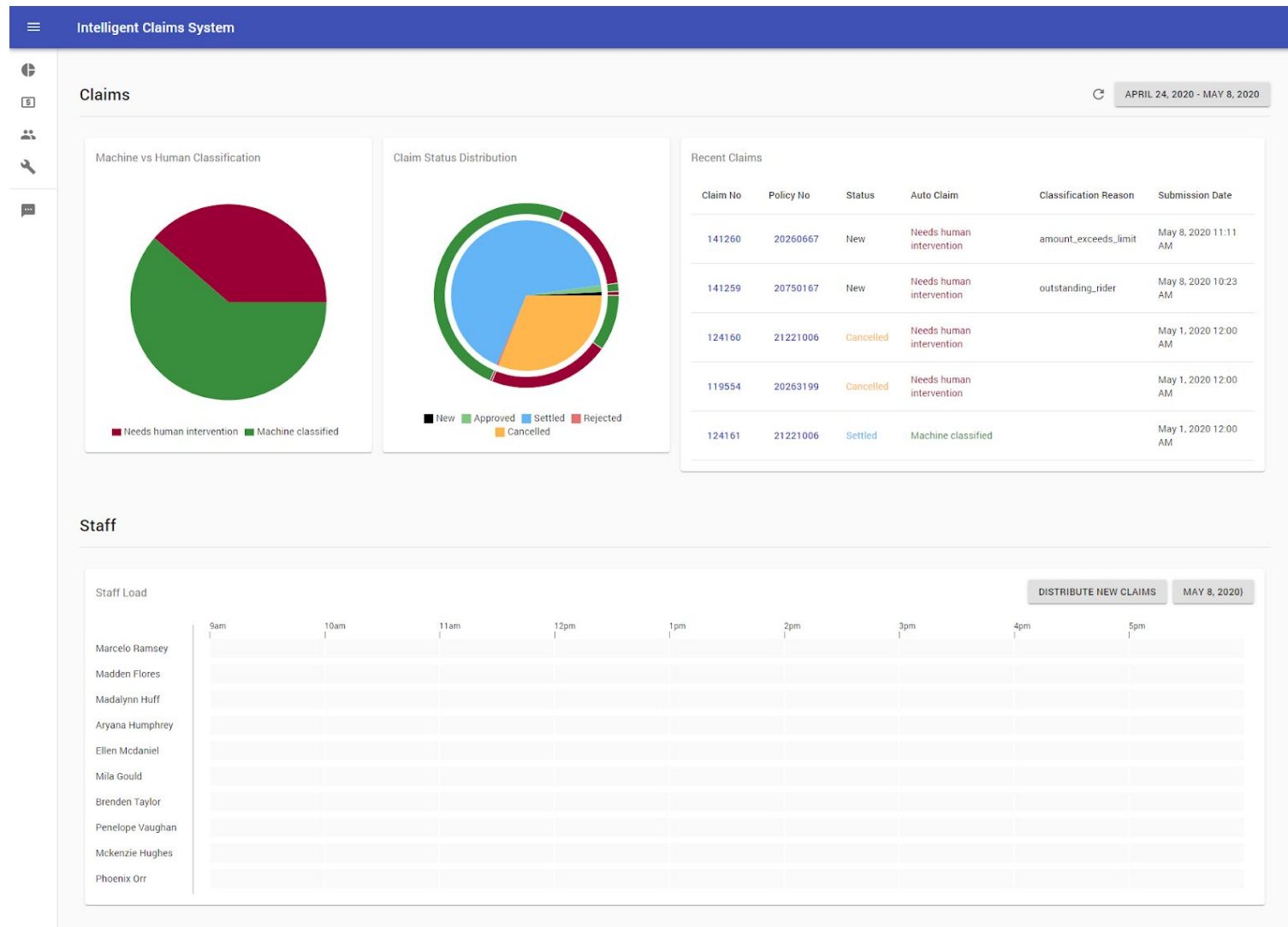
Once the application is running, the chatbot can be accessed by going to “<http://127.0.0.1:9001>” on your browser. Note that this assumes that the Docker host is 127.0.0.1. It may differ based on your configuration.

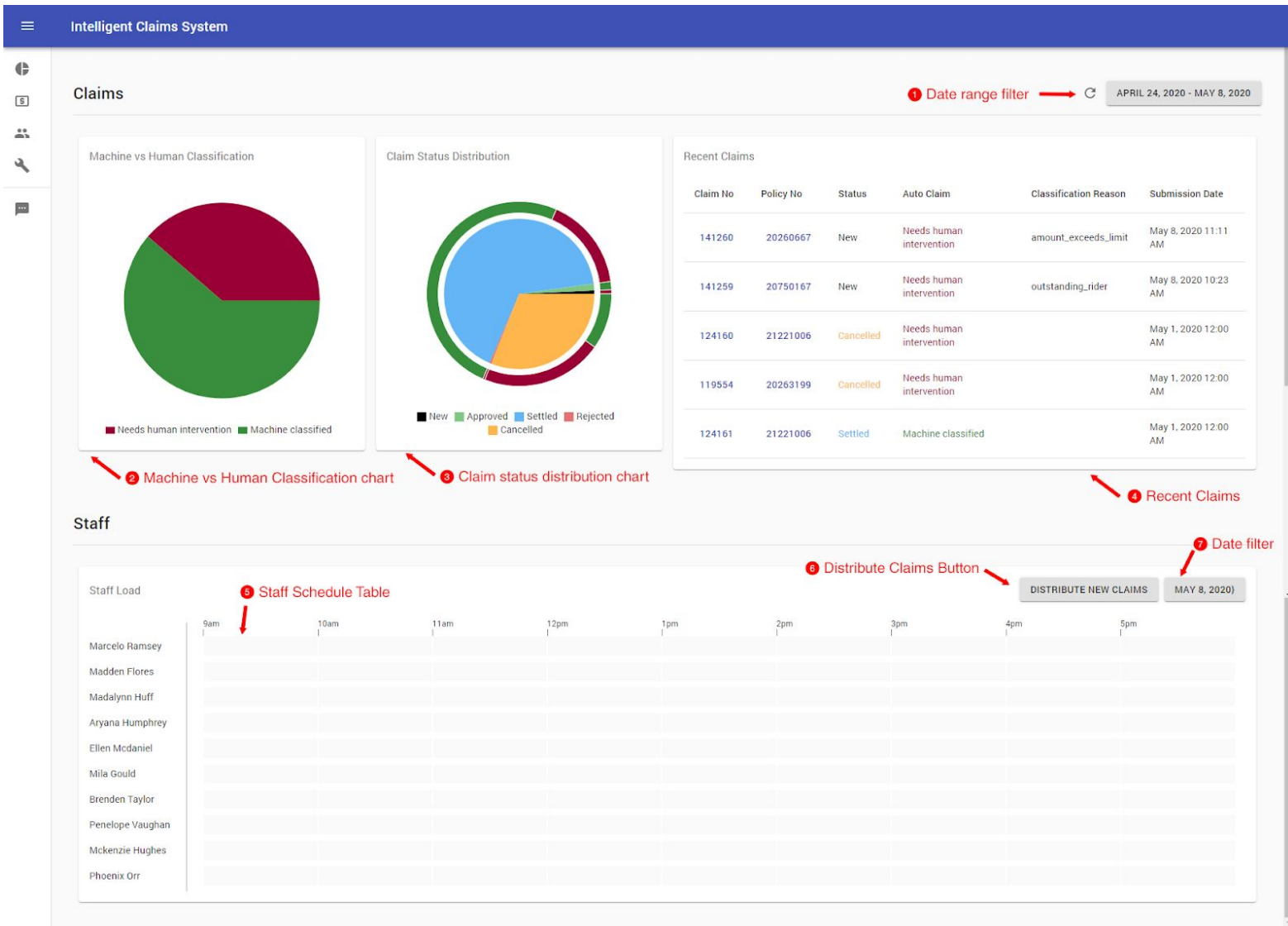
The dashboard gives you an overview of the system status. You can see how many claims are automatically approved by the system. If it is not approved, a reason will be given. You can view claim / policy details to compare the accuracy of the classification system.

You can also view which claims are being assigned which staff. Each staff's leave can also be managed on the dashboard.

2.1 Homepage

You should see this when you land on the page:





2.1.1 Date Range Filter

This is a date filter that can be used to filter the data that is fed into the “Machine vs Human Classification” chart, the “Claim Status Distribution” chart, and the “Recent Claims” table. Date here refers to the submission date.

2.1.2 Machine vs Human Classification chart

This chart shows the distribution of a classification status across claims. The classification status can either be “Pending classification”, “Machine classified”, or “Needs human intervention”.

- Pending classification - These are claims that are not yet picked up by the claim classifier
- Machine classified - These are claims that have been automatically approved by the claim classifier
- Needs human intervention - These are claims that the classifier rejected. Rejection reasons are provided. A human will then need to look at the claim manually to decide if it should really be rejected.

2.1.2 Claim Status Distribution Chart

The inner pie chart shows the distribution of statuses across claims of a claim. Statuses can be “New”, “Pending”, “Approved”, “Rejected”, “Settled”, or “Cancelled”.

The outer pie chart shows the distribution of classification statuses within each status. For example, how many claims within “Approved” are “Machine classified” vs “Needs human intervention”.

2.1.3 Recent Claims

These are the 5 most recent claims based on the date range filter.

2.1.5 Staff Schedule Table

This shows the daily schedule of each staff.

2.1.6 Distribute Claims Button

Click on this button to trigger a distribution job. Only claims that have status as “New”, and have been marked “Needs human intervention” will be distributed.

2.1.7 Date Filter

This is to help navigate to other dates to show on the staff schedule table

2.2 Claims List

The claims list shows all the claims in the system, filterable by their submission date.

Intelligent Claims System

Claims

1 Date range filter

MAY 8, 2020 - MAY 8, 2020

Claim No	Policy No	Status	Auto Claim	Classification Reason	Submission Date	Total Exp	Actions
141578	20754193	New	Needs human intervention	outstanding_premium	May 8, 2020 12:23 PM	\$403.59	VIEW DETAILS
141576	20266630	New	Needs human intervention	outstanding_rider	May 8, 2020 12:23 PM	\$5,408.58	VIEW DETAILS
141581	20749786	New	Needs human intervention	outstanding_rider	May 8, 2020 12:23 PM	\$8,013.76	VIEW DETAILS
141584	20748854	New	Needs human intervention	outstanding_premium	May 8, 2020 12:23 PM	\$225.17	VIEW DETAILS
141583	20266520	New	Needs human intervention	doctor_in_blist	May 8, 2020 12:23 PM	\$1,516.27	VIEW DETAILS
141579	20753258	New	Needs human intervention	outstanding_rider	May 8, 2020 12:23 PM	\$7,991.79	VIEW DETAILS
141582	20485024	New	Needs human intervention	outstanding_premium	May 8, 2020 12:23 PM	\$11,872.52	VIEW DETAILS
141577	20754685	New	Needs human intervention	outstanding_rider	May 8, 2020 12:23 PM	\$7,741.9	VIEW DETAILS

< 1 2 3 4 5 ... 12 >

2 View details

2.2.1 Date range filter

This is a date filter that can be used to filter which claims are shown on this page. Date here refers to the submission date of the claims.

2.2.2 View Details Button

You can click on the “View details” button on each claim to view it’s details.

2.3 Claim Details

This page shows the details of a claim.

Intelligent Claims System

Claim No: 121969

Policy No	Main Claim No	Date Occ	Status
20750153	111048	April 1, 2020 12:00 AM	Settled
Bill Document	Rider	Total Exp	Auto Claim
-	Y	\$919.5	Machine classified
Classification Reason	Remark	CoPay	Specialist
	seed data	\$0	-

Medical Panel

Medical Panel Reg No	Medical Panel Name	Medical Panel Specialty	Medical Panel Blacklisted?
-	-	-	N

Claim Items

ID	Description	Benefit Code	Qty	Amount
Sorry, no matching records found				

2.3.1 Overview of properties

Here is a brief explanation of each property you see on the screen:

Policy No

This is the policy no against which the claim is made. You can click on the icon beside the Policy No to view the details of the policy.

Main Claim No

This is the claim no of the parent claim, if any. You can click on the icon beside the Main Claim No. to view the details of the parent claim.

Date Occ

Date of hospital / medical bill

Status

Status of a claim. It can be “New”, “Pending”, “Approved”, “Rejected”, “Settled”, or “Cancelled”.

Bill Document

Download link to the bill document

Rider

Whether the policy has a rider plan

Total Exp

Total amount of the medical bill

Auto Claim

Classification status of the claim. It can be “Pending classification”, “Machine classified”, or “Needs human intervention”.

Classification Reason

If a claim is classified as “Needs human intervention”, the reason will be stated here

Remark

Generic remarks

CoPay

How much the insured needs to pay based on the CoPay scheme. (This is outside the scope of the project.)

Specialist

The name or registration no of the visited specialist

Medical Panel Reg No

Registration no of the visited specialist

Medical Panel Name

Name of the specialist. This is also sometimes the registration number, when data is not available

Medical Panel Blacklisted

Whether the specialist is blacklisted

Claim Items

Line item within the claim

2.4 Policy Details

This page shows the details of a policy.

Intelligent Claims System

Policy No: 20269658

Insured Name
Yael Faulkner

Insured ID
S5688751Y

Expiry Date
October 31, 2020 12:00 AM

Outstanding Rider Premium
\$0

Premium Amount
\$88.79

Product Code
PEA

Commencement Date
November 1, 2009 12:00 AM

Outstanding Premium
\$0

Description
Enhanced Advantage

Effective Date
November 1, 2019 12:00 AM

Rider Premium Amount
\$0

Claim History

Claim No	Policy No	Status	Auto Claim	Classification Reason	Submission Date	Total Exp	Actions
141605	20269658	New	Needs human intervention	amount_exceeds_for_hospital_type	May 8, 2020 12:44 PM	\$12,688.18	VIEW DETAILS

Product Benefits

Benefit Code	Description	Benefit Limit
CHSP	COMMUNITY HOSP RB	\$1,000,000
LTPN	Long-term parenteral nutrition	\$1,000,000
RO	RADIOTHERAPY - BRACHYTHERAPY WITHOUT EXTERNAL	\$1,000,000
RW	RADIOTHERAPY - BRACHYTHERAPY WITH EXTERNAL	\$1,000,000

2.4.1 Overview of properties

Insured Name

Name of insured person

Insured ID

NRIC of insured person

Commencement Date

Date the policy commenced

Effective Date

Date the policy is effective. This gets refreshed every policy year.

Expiry Date

Date the policy current policy year will end.

Premium Amount

Monthly premium fee

Outstanding Premium

Owed premium amount

Rider Premium Amount

Monthly premium fee for the rider plan, if any

Outstanding Rider Premium

Owed rider premium amount

Product Code

Internal product code for the policy

Description

General description

Claim History

All claims made under this policy

Product Benefits

Itemised benefits for this policy

2.5 Staff List

This page shows all the staff within the company.

Intelligent Claims System

Staff

ID	Name	Pool1	Pool2	Actions
1	MARCELO RAMSEY	0	1	VIEW DETAILS
2	MADDEN FLORES	1	26	VIEW DETAILS
3	MADALYNN HUFF	26	31	VIEW DETAILS
4	ARYANA HUMPHREY	31	40	VIEW DETAILS
5	ELLEN MCDANIEL	40	42	VIEW DETAILS
6	MILA GOULD	42	0	VIEW DETAILS
7	BRENDEN TAYLOR	0	1	VIEW DETAILS
8	PENELOPE VAUGHAN	1	26	VIEW DETAILS

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2.5 Staff Details

This page shows the details of a staff and his leave schedule

Intelligent Claims System

Marcelo Ramsey

ID

1

Name

Marcelo Ramsey

Pool1

0

Pool2




1

Leave Schedule

+

1 Add Leave

2 Leave Schedule

ID	Start Date	End Date	Actions
12	May 6, 2020 5:00 PM	May 6, 2020 6:00 PM	
14	May 6, 2020 4:00 PM	May 6, 2020 5:00 PM	
17	June 9, 2020 9:00 AM	June 16, 2020 6:00 PM	

2.6.1 Overview of properties

ID

ID of the staff

Name

Name of the staff

2.6.2 Add Leave button

Clicking on this button will show a leave form, to add a leave for the staff.

The screenshot displays the 'Intelligent Claims System' interface. A modal window titled 'New Leave' is open, allowing the addition of a leave entry for staff member Marcelo Ramsey (ID 1). The modal includes date pickers for start and end dates (both set to May 8, 2020), a 'Full day leave' checkbox, and dropdown menus for 'Start Time' (9:00am) and 'End Time' (6:00pm). A calendar view shows the month of May 2020, with the 8th highlighted. The background interface shows a 'Leave Schedule' table with columns for ID and Start Date, containing three entries for staff member 1.2, 1.4, and 1.7.

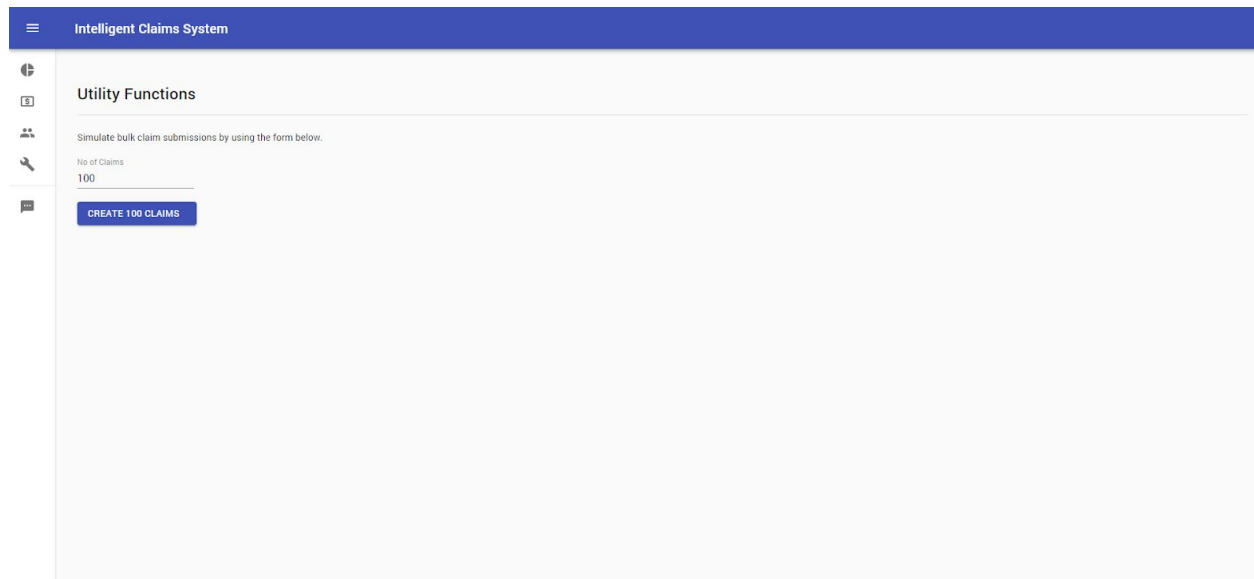
ID	Start Date
1.2	May 6, 2020 5:00 PM
1.4	May 6, 2020 4:00 PM
1.7	June 9, 2020 9:00 AM

2.6.3 Leave Schedule

These are the leave that a staff currently has.

2.7 Utility Functions

This page contains the utility function to simulate randomised claims. You can input up to 300 claims, and once clicked, random claims will be input into the system. You can then go to the homepage to monitor the classification progress. Note that depending on the number of cases created, classification may take up to 5 minutes. You will need to press the reload button on the homepage to see the progress.



The screenshot shows a web application interface for the 'Intelligent Claims System'. The top navigation bar is dark blue with a hamburger menu icon and the text 'Intelligent Claims System'. A left sidebar contains several icons: a pie chart, a document with a checkmark, a group of people, a wrench, and a speech bubble. The main content area is titled 'Utility Functions' and contains the instruction 'Simulate bulk claim submissions by using the form below.' Below this, there is a label 'No of Claims' followed by a text input field containing the number '100'. At the bottom of the form is a blue button labeled 'CREATE 100 CLAIMS'.