

## **Project Title**

General Billing Enquiries AI Assistance - KKHelpBot

## **Project Lead and Members**

- Parmeet Kaur
- Rachel Chang
- Lee Hui Quan

## **Organisation(s) Involved**

KK Women's and Children's Hospital

## **Healthcare Family Group Involved in this Project**

Healthcare Administration

## **Specialty or Discipline (if applicable)**

Finance, Business Office

## **Aims**

Business Office envisioned a one-stop communication platform for patients/users to connect at anytime, anywhere.

## **Background**

See poster appended / below

## **Methods**

See poster appended / below

## **Results**

See poster appended / below

## **Conclusion**

See poster appended / below

## **Additional Information**

Singapore Healthcare Management (SHM) Conference 2021 – Shortlisted Project  
(Finance Category)

## **Project Category**

Technology, Digital Health, Chat Bots

## **Keywords**

AI Assistance, Billing Enquiry, Natural Language Processing

## **Name and Email of Project Contact Person(s)**

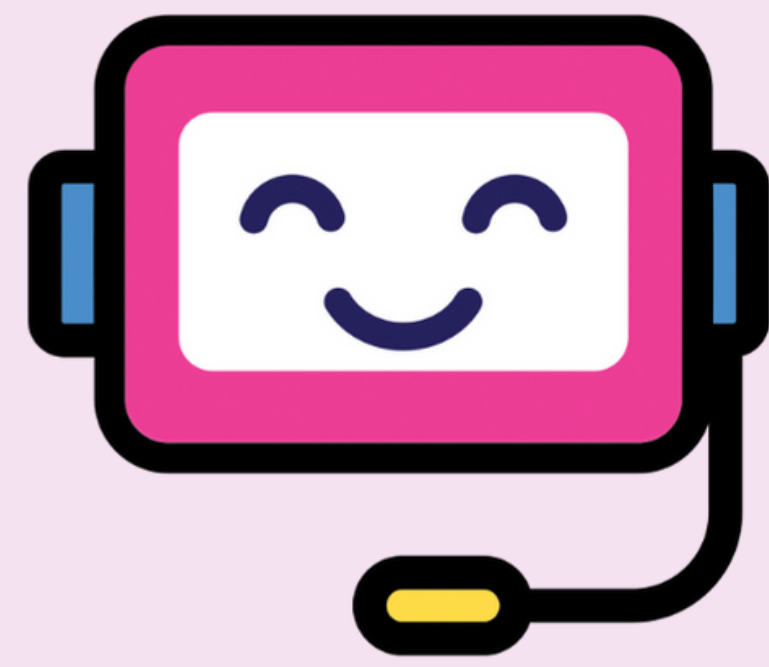
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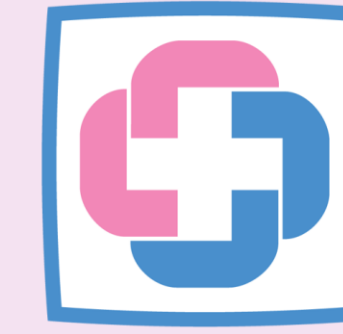
**Singapore Healthcare Management 2021**



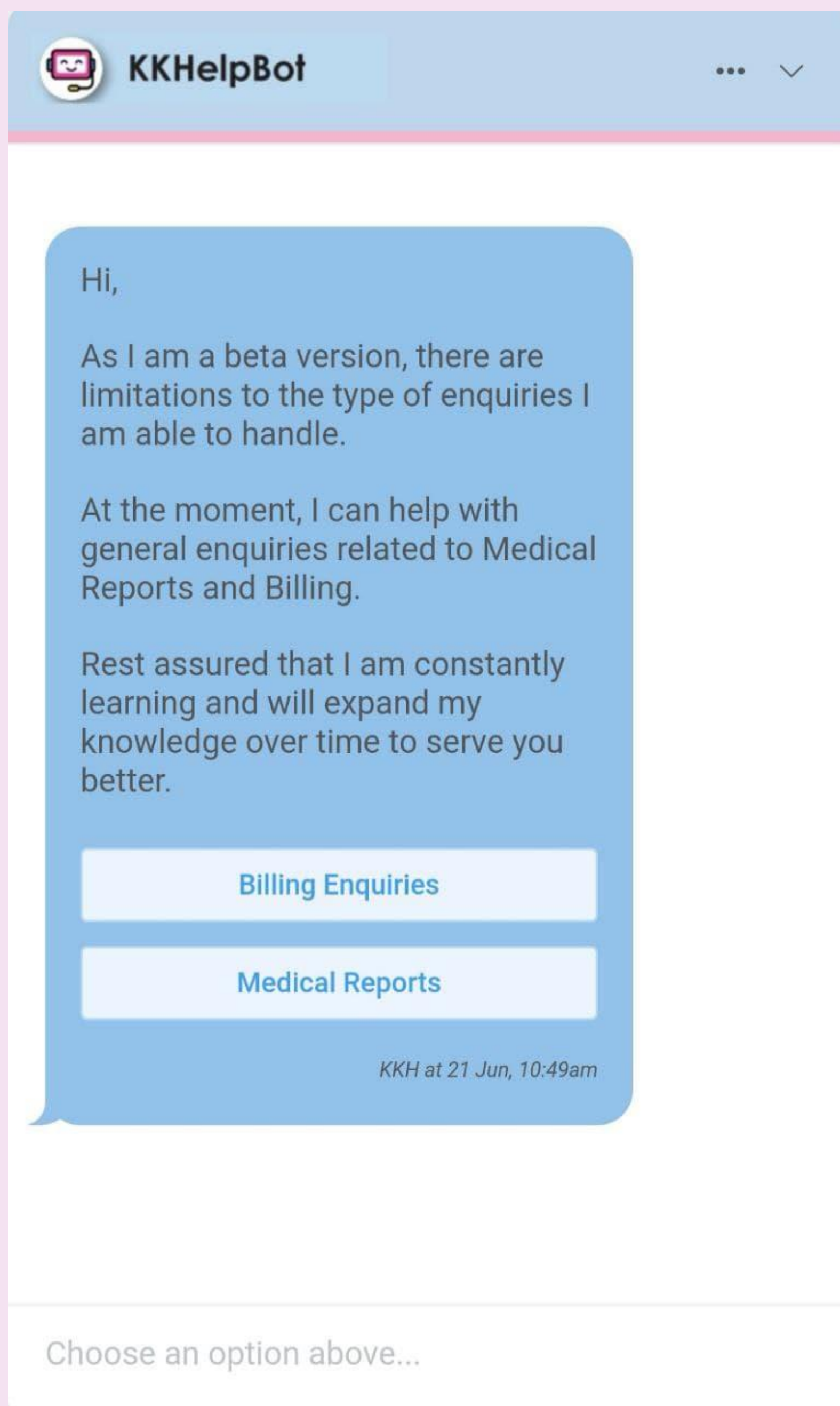
# KKHelpBot

General Billing Enquiries AI Assistance

Parmeet Kaur, Rachel Chang and Lee Hui Quan  
Finance, Business Office



KK Women's and Children's Hospital  
SingHealth



## | BACKGROUND & INTRODUCTION

Business Office envisioned a one-stop communication platform for patients/users to connect at anytime, anywhere.

KKHelpBot was launched on 6 August 2020 and capable of addressing a huge part of the general billing enquiries the hospital receives.

## | METHODOLOGY – 2 LEVELS

### Question Level

- Real-life examples of how patients/users ask questions were obtained to retain the natural language elements such as incomplete sentences, grammatical/spelling errors.
- The bot's Natural Language Processing (NLP) function uses these real-life examples as the training data.
- This enhances KKHelpBot's ability to understand and handle the way we speak to predict more accurately the intention of the question the bot receives.

### Answer (Response) Level

- Remodelled and packaged healthcare financing information in bite size for easier and quicker understanding for users.
- Review to adopt a more conversational approach for the responses to give KKHelpBot a more friendly and human-like tone.

## | RESULT

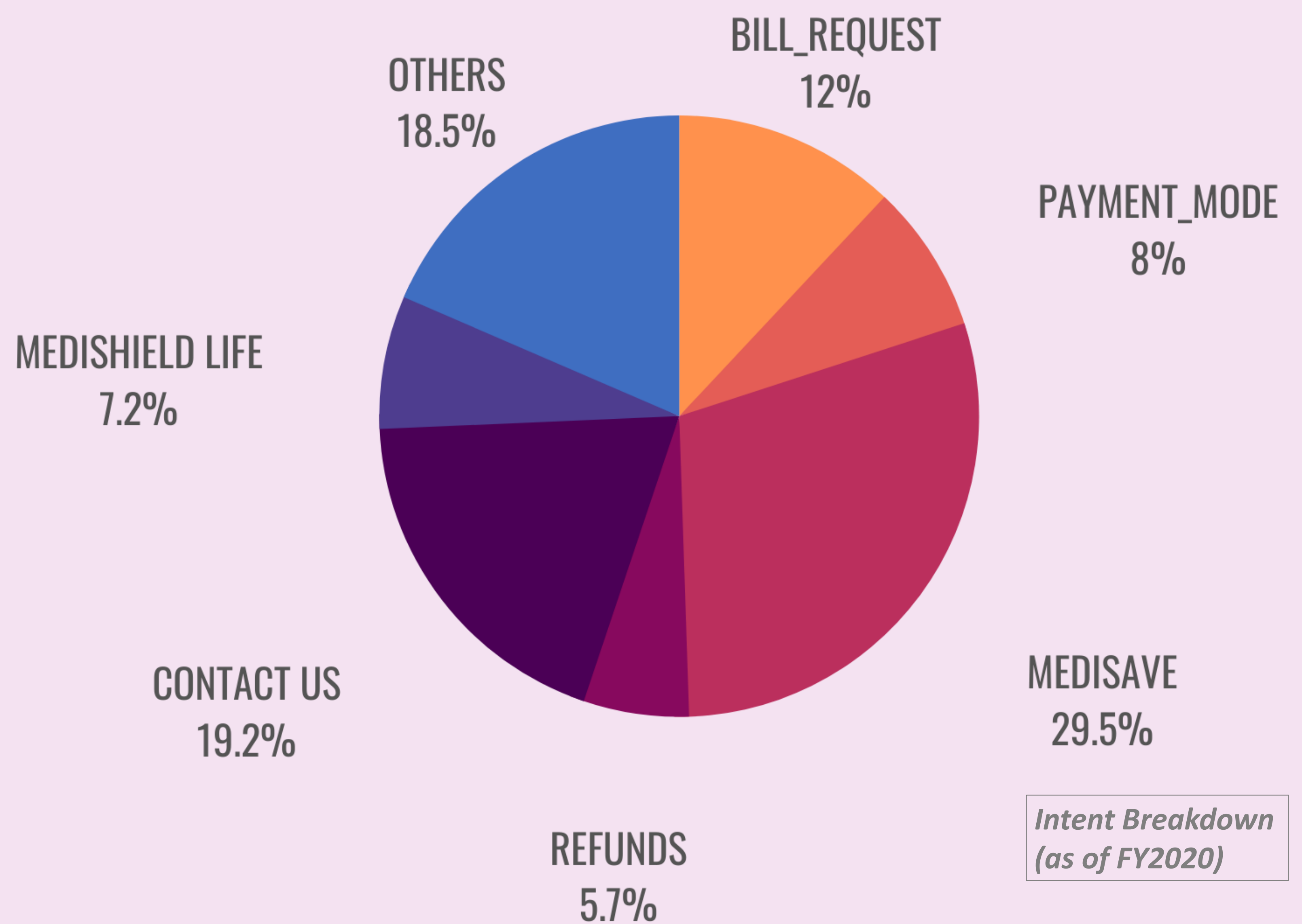
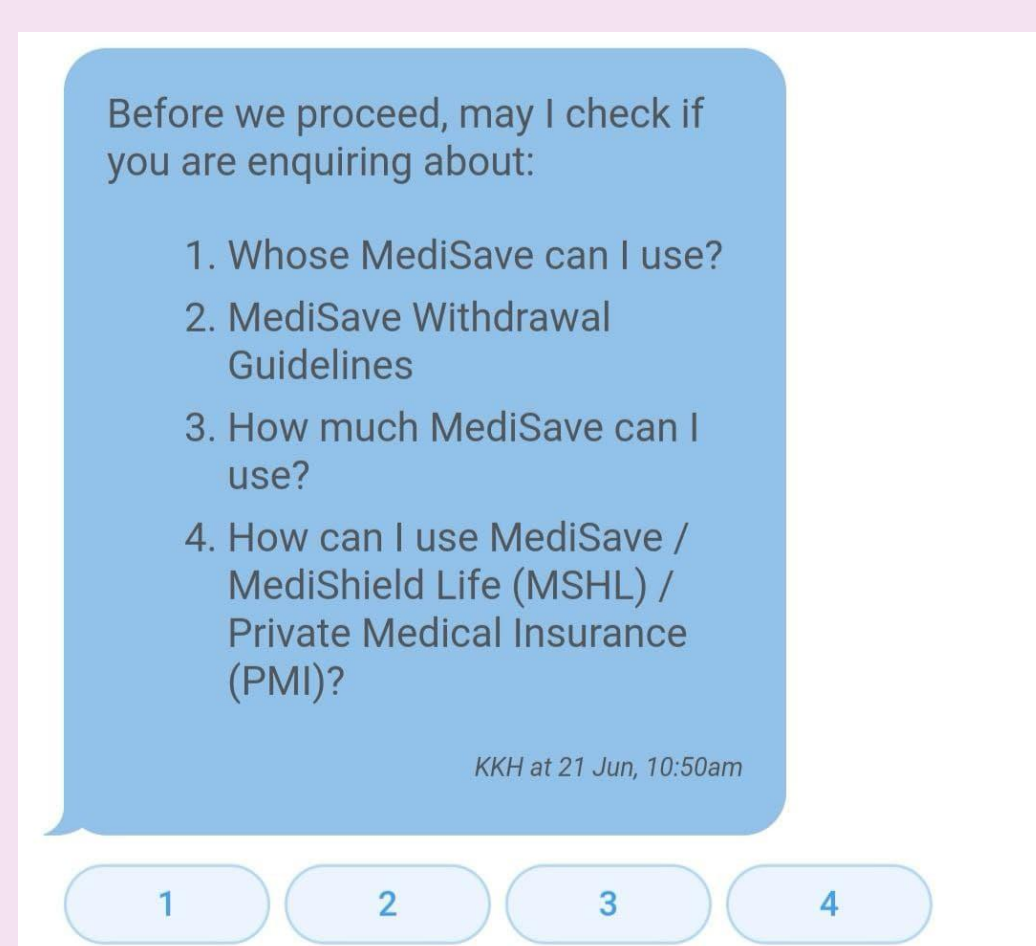
Users rated their experience with the bot 4.43 out of 5 on average. ★★★★★

With data analytics dashboard, we are able to track:

- ✓ the total number of interactions and unique users
- ✓ visualise common enquiries, and
- ✓ identify possible areas of needs

Data Outcomes and Learning Opportunities:

- Chatlog showed some users did not arrive at their desired MediSave responses. We immediately revamped the MediSave content with clear prompts to refine their enquiry.
- Based on our findings that 12% of the interactions were for bill requests, we reviewed our response and created an e-form via FormSG so that users can easily request for their bills without having to call or email KKH/ 1 Finance Shared Services.
- We are able to routinely fine-tune the bot's knowledge and increase its accuracy based on the captured "no prediction utterances".



## | CONCLUSION & FUTURE WORK

KKHelpBot with its AI capabilities will pave the way for transformation of billing functions and services through remote transactions. We also aim to enable Financial Counselling services via the bot and open up the new norm of Zoom Video Sessions for patients to meet us. Remote transactions will reduce the number of counters and free up estate space for medical needs and result in staff job redesigning to focus on reducing hospital Account Receivables (AR).

As a powerful AI tool, we believe in its endless possibilities the bot can do to make healthcare financing easy and available at everyone's fingertips. We have scaled up to include SingHealth's institutions – Singapore General Hospital and Sengkang General Hospital!

