Project name: Edubot

Bot name : Jarvis
Tagline : *Your personal classroom assistant*
Team Name : team name ?
Team ID :

Purpose of project:

Making learning and teaching through the online platform more consolidated through the use of a telegram bot.

Since COVID-19 has forced most of our learnings to be hybrid (both physical and online), teachers have been trying to leverage more of the digital suite of applications to store information online (ie. google drive, microsoft one drive, LMS, etc.). However, different teachers have different take on such applications.

One may prefer handing out assignments by emailing the students links to the google drive / classroom, another may prefer sending the assignment documents to the class's WhatsApp group chat. All of this different take will surely confuse and overwhelm the students with the deadlines they have to keep track of. This is where our bot comes in handy.

How does our bot make learning and teaching more **safe**, **exciting** and **effective**?

EFFECTIVE

Our bot offers the teachers a more **convenient** and **consolidated** way of notifying the students while also offering easy access to the current assignments' list. When an assignment is issued or deleted, our bot will send a message to individual students, notifying the details of the assignment while also requiring them to acknowledge the message. Upon acknowledgement, the teacher will also be notified.

Also, Telegram bots make the process much more efficient as the lag is significantly reduced while the features are also not embedded under multiple links on a page. This makes it that much easier for students to view assignments given to them and the relevant information regarding those assignments.

Additionally, the fact that this process is done through a bot through typing commands and framed as a conversation, the process is much more intuitive. I believe that students and teachers have been using messaging apps as their primary means of communication and using Telegram will be the same. Afterall, talking to a bot is way more engaging and fun than clicking links and buttons on a screen that refuses to load.

SAFE

Telegram is end-to-end encrypted and with its growing popularity in enterprises, it is safe to say that telegram is secure. Our bot will be managed by the individual institution that the

users are related to, instead of a single entity controlling all the traffic with the bot. Setting up of the bot is also pretty straightforward with the availability of secure cloud servers. Moreover, with robust documentation the python bot has, most issues are already solved.

Our bot also ensures that the “students” are not granted access to “teacher” commands such as adding or deleting assignments. This is done by verifying their chat_id with the one they registered. Hence data is safely processed and protected from the user’s side.

EXCITING

Since telegram’s functions are more “modular”, chat groups can then tap on the vast resources of community made bots to make the classroom setting more fun and engaging. Imagine being able to play a game of telegram werewolf during your break and then shifting to talking about work right after the game ends. Such an environment where both fun and learning is contained allows for greater relationships between students and teachers, making school as a whole more fun and exciting for students.

Features of bot (Teachers):

1. Create classrooms
    - Teachers can create rooms called “Classrooms” to interact with students easily
2. Assign / Delete assignments
    - Notify students of assignments added or removed
3. View
    - Class: All available class in the institution with the user’s role in each one
    - Class Members: Class members of a selected class
    - Assignments: Assignments of a selected class
4. Only the teacher registered to the class can add / delete assignments

Features of bot (Students):

1. Join classrooms
    - Students can join rooms called “Classrooms” to interact with others within his/her class in school easily
2. Access assignments
    - Students can receive, acknowledge and view assignments through telegram on the spot
3. Be a student mentor for others
    - Students can be mentors for peers by making their own classrooms
4. Receive notifications regarding assignments
    - Students will know when teachers add or delete assignments

Future developments:

1. Adding a structured noSQL / SQL database to store data
    - Able to store homework in pdf or photo format and access it from there
    - Able to integrate API to perform CRUD actions which can be used to make other applications
    - Ensure data integrity

2. Attaching files (photo/documents) along with the assignments
3. Adding multiple teachers to 1 class to facilitate teaching and learning
4. Allowing students to view individual assignments
5. Dashboard to view intensity of assignments
    - Webpage that utlises the data from the structured database to view data more conveniently.
    - Able to perform the same task as the Telegram bot

Inspiration

Jarvis from the Marvel Cinematic Universe

Learning Management System from MOE

Telegram bots from Telegram

What it does

The telegram bot allows teachers to create classes and handout assignments through the bot. Students can also receive assignments and acknowledge that they have received them. Both teachers and students can view their classes, members of the class and the assignments already issued.

How we built it

Challenges we ran into

There were several limitations with Telegram Bot API as it is not versatile enough to handle higher level operations and so. We also have to deal with the time crunch, which meant that we have to manage our expectations and resources properly so that we can deliver the final prototype and product in a timely fashion.

While some of our team members had their shares of hackathons, in truth – we were a mixed batch of individuals from different expertises ranging from Chemistry to Computer Science with different strengths and weaknesses. Furthermore, as each of us have our own interpretations of the whole ideation of the project, this means that there will be times where we had to effectively communicate with one another in a

time crunch to get features and servers online, all while compensating each other for our different aptitudes and strengths in this hackathon.

Furthermore, we recognized that our solution must also be cost-effective and sustainable, as it can be computationally and economically unfeasible to sustain such a framework in the long run. Video links were favoured over transmitting colossal amounts of data (in lecture videos) over to the end-user and the entire experience should be seamless and flowing where necessary. The time crunch of only 24 hours in this hackathon has also caused us to do snap evaluations in the architecture of our solution so that the product can be delivered before the expected deadline.

Accomplishments that we're proud of

Being able to create a working prototype of o

What we learned

Not only have we improved on our programming knowledge and experience, but we have also learnt about the applicability of making use of what we have learnt to create a better impact to our community and to a larger impact, to our society. To be able to understand the importance of user experience is paramount; as our team has realized it to be a key factor in maintaining the continued use of our solution for their daily educational and social needs whilst in university. Our team were also given an eye-opening opportunity to learn from the various mentors from different industries such as NUS, Micron and Centre for Strategic Infocomm Technologies (CSIT), as

they have provided meaningful insights and experiences during the hackathon which has fundamentally shaped our thinkings towards the industry.

What's next for EduSYS

Team SYS is confident in bringing EduSYS into greater heights and there are numerous opportunities for us to turn our solutions into reality. Our different skillsets and strengths, coupled with our vast interdisciplinary knowledge, has provided us with a unique perspective to a problem – realizing that the building of a holistic and full product takes more than just programming and knowledge in computer science. We are certain that in the near future, continued development will progress on for EduSYS which will bring about a greater impact to students across various backgrounds and levels in Singapore.

Built With

- amazon-cloudwatch
- amazon-web-services
- api-gateway
- cloudfront
- lambda
- python
- python-telegram-bot
- s3
- telegram

Try it out

- GitHub Repo
- t.me