Navya- The Automated Data Driven Bot

Problem Statement:

Finding the live data insights from huge data, is the key challenge. These data insights drive the decisions making and helps to take the corrective steps. At broader level, data can be in the form anything. This can be the result of specific actions. This Bot is programmed to resolve following key problem statements.

1) **Cognitive Quality Analysis**:
   Compromised quality of any software products/services can be inimical. It becomes pivotal to get the insights about the live quality details keeping pace with trending digital market place.
2) **Resource Management**:
   Managing huge records of resource profiles on day to day basis, has its own challenges. An automated system that naturally handles the frequently asked queries & makes HR process streamlined, becomes an essential tool for such enterprise level applications.

How it Works:

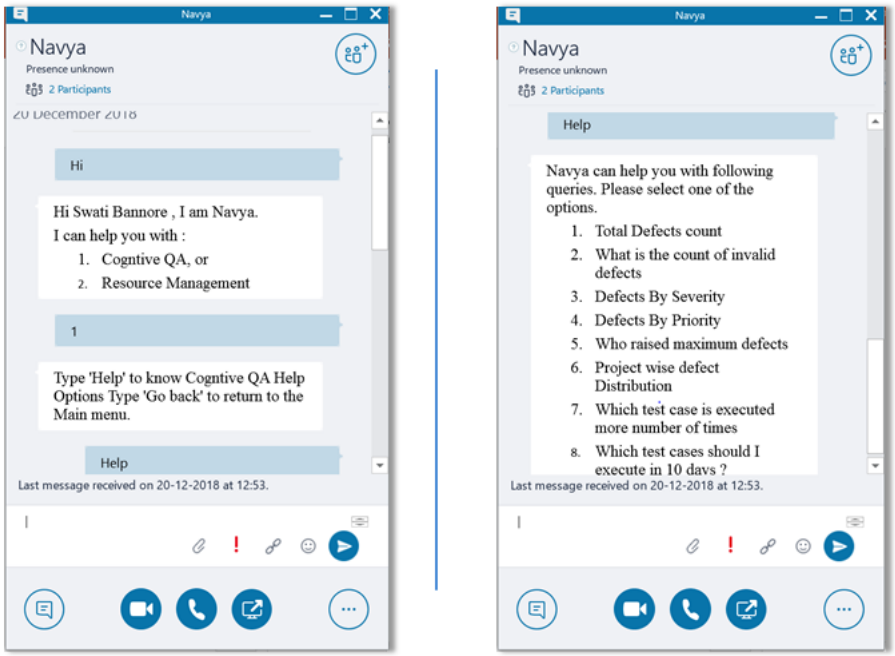
Navya is the data driven Bot that responds to user queries with natural language understanding intelligent service & using questions and answers knowledge base services.

Navya for Cognitive Quality Analysis

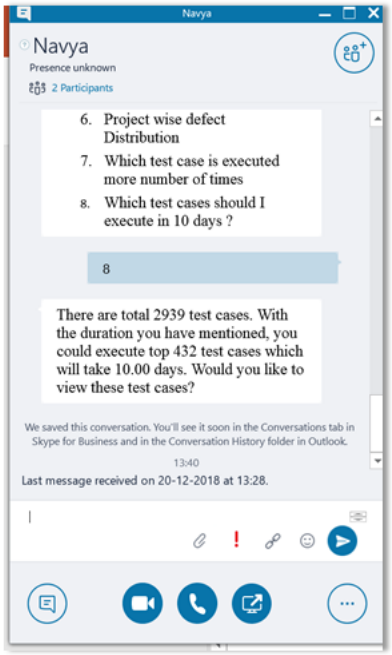
Cognitive Quality analysis can be done in **Skype For Business** and **Webchat Messengers** as described below.

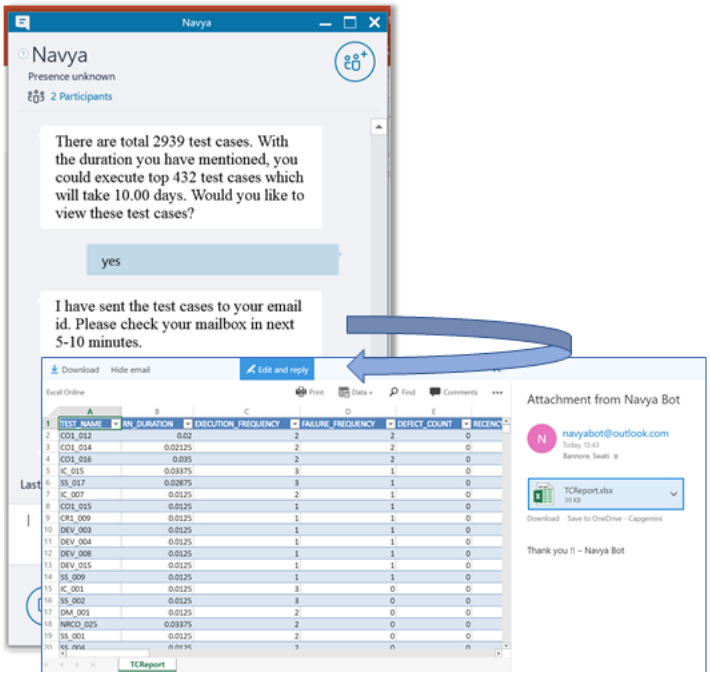
Skype For Business

Navya Bot is **easily discoverable** on Skype for Business interface. This keeps QA team & business partners connected with Navya Bot through **instant messaging**. After the Bot is discovered, customer can initiate the discussion with the Bot in Natural Language as described below.

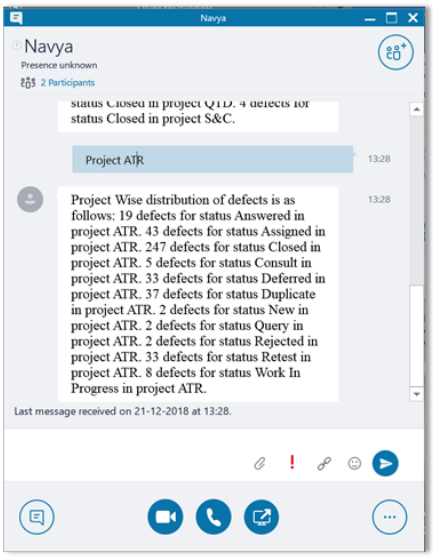


Then Navya Bot displays the help options to gain specific data insights. Customer can respond with the specific option. For example if Customer wants to know about recommended test cases that needs to be executed for specific time period, he/she can respond with option 8. Based on Customer's consent Bot responds with test case report as the email attachment.

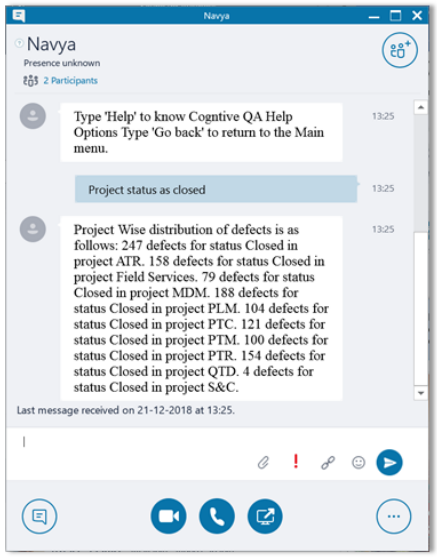




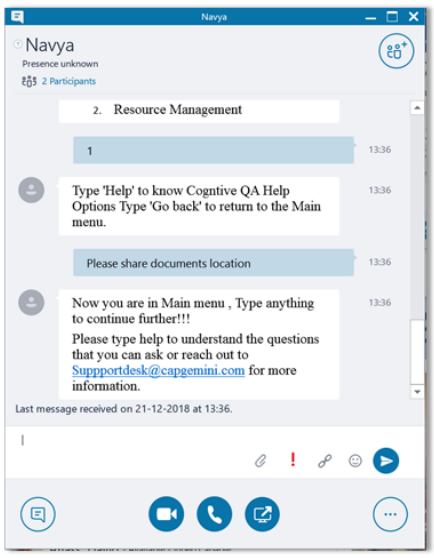
Navya Bot can provide live status of specific Project



Navya Bot can provide project details with specific status

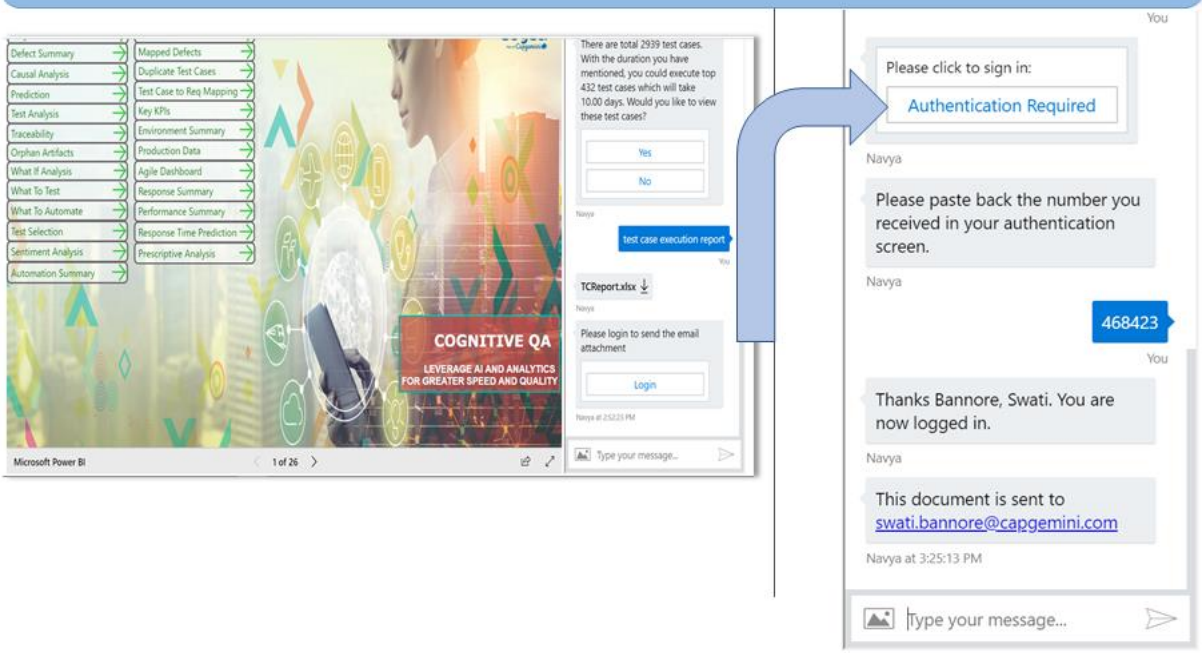


Navya Bot can prompt to contact helpdesk if required



Webchat

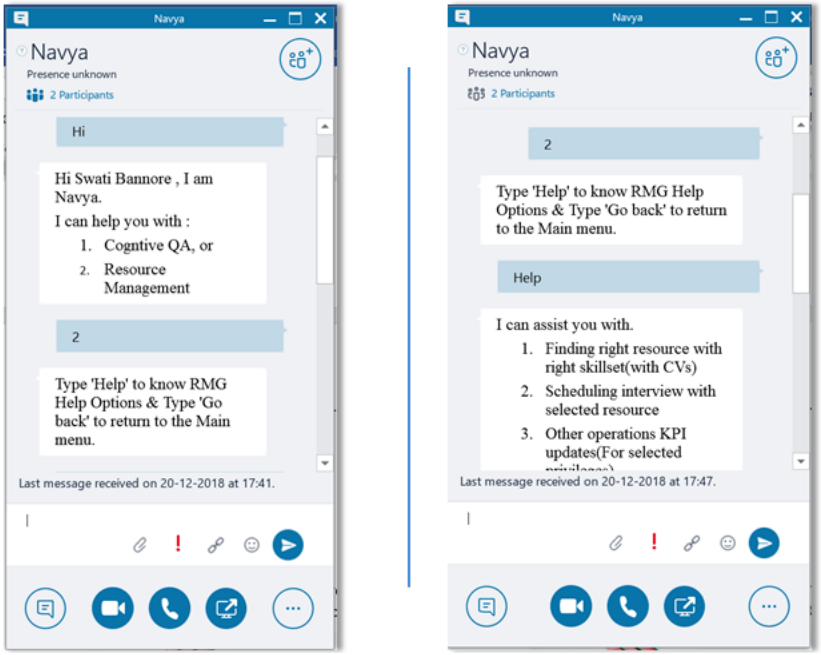
Navya Bot is accessible in browser based Webchat channel. The Customer interaction with the Bot is similar to Skype for Business channel except he/she has to be authenticated explicitly with Azure AD Credentials. After successful authentication, test case report will be sent to the Customer's email ID. Also Customer can download the report from webchat channel itself.

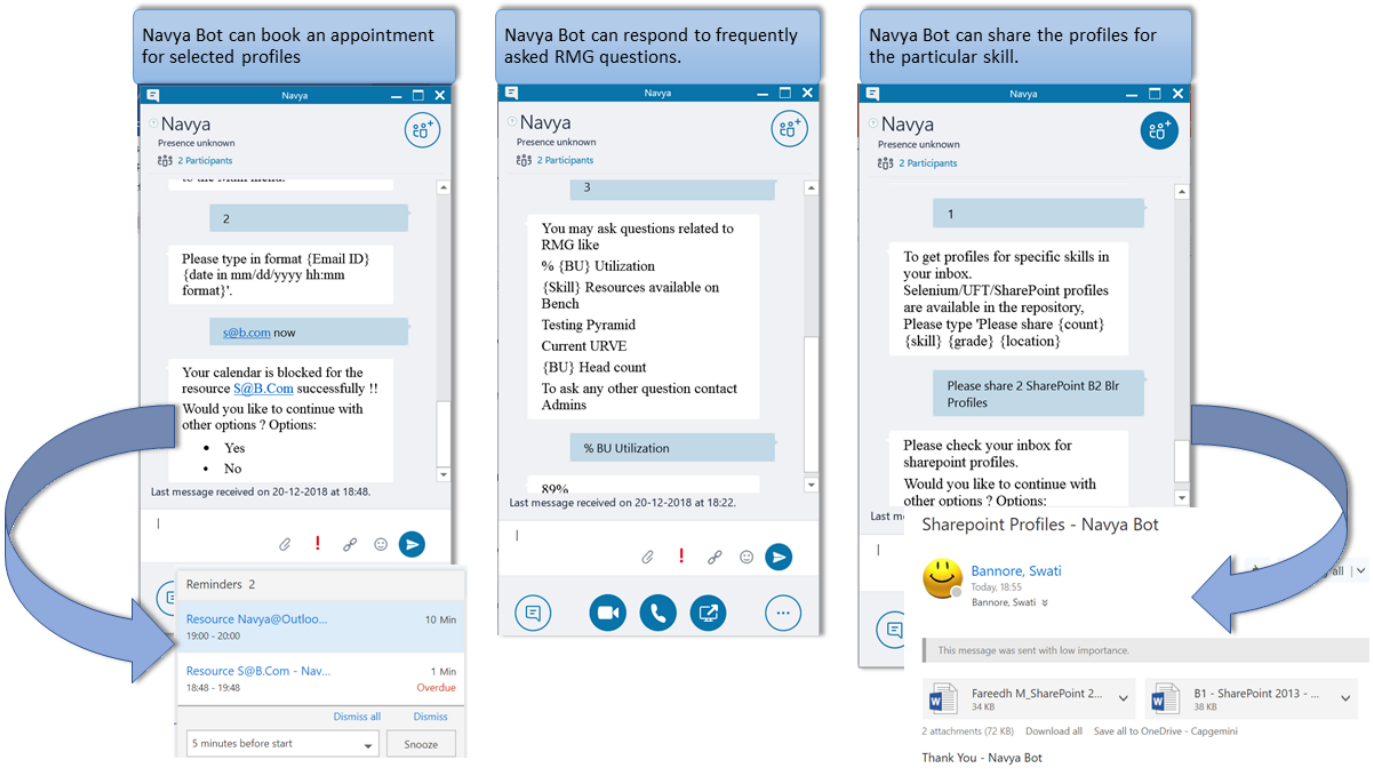


Navya for Resource Management

Resource Management can be done in **Skype for Business** Messenger as described below.

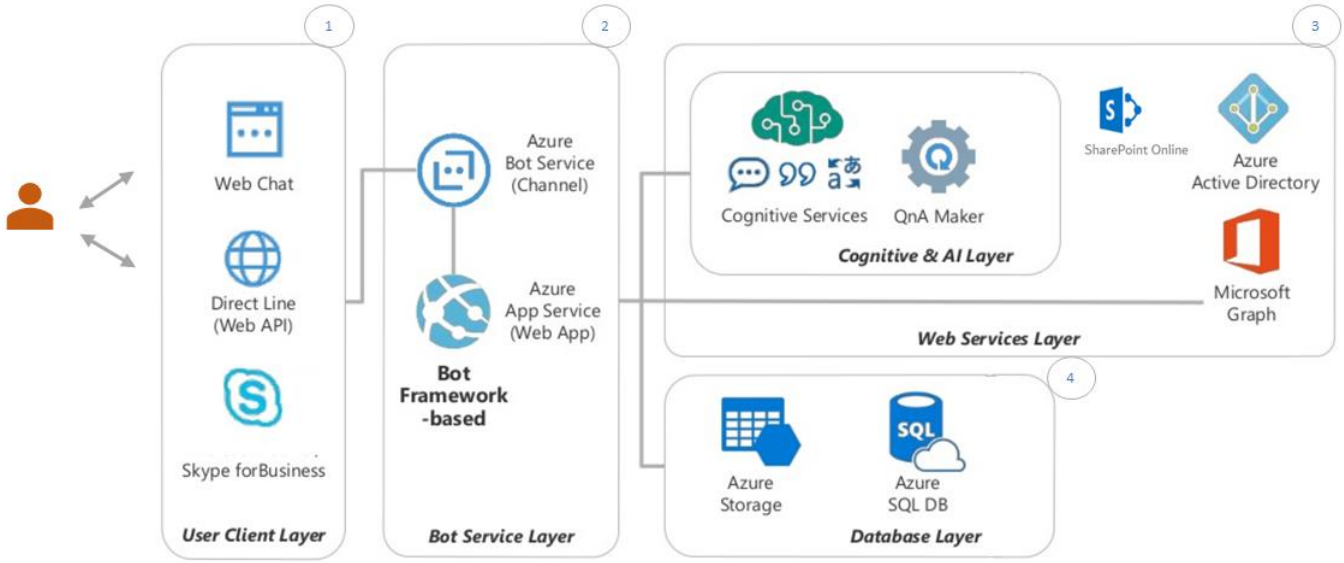
Navya Bot is **easily discoverable** on Skype for Business interface. This keeps Resource Management team & business partners connected with Navya Bot through **instant messaging**. After the Bot is discovered, customer can initiate the discussion with the Bot in Natural Language as described below.





Solution Overview:

Following high level technical architecture diagram describes the information flow from Customer to Bot & responses are generated from Database layer/Cognitive & AI Layer/Web Service layer with respect to corresponding user information flow.



1.User Client Layer

Customer can initiate discussion with Navya Bot through Webchat or Skype for business channel as described in the above sections.

2.Bot Service Layer

A controller hosted as App Service Plan receives the input text and pass on to Cognitive/AI layer. The controller acts as middleware to predict intents from Input text dynamically and then to process the predicted Intent including database interactions.

3.Cognitive & AI Layer

As described in the previous section LUIS (Language Understanding Integrated Service) determines the Intent dynamically and generate responses from Data Layer or Knowledge base services. Here the intent of the input text would be predicted based on pre-trained Utterances and Entities.

4.Database Layer

Azure SQL database table contains the list of intents and corresponding SQL queries that requires dynamic execution based on user requests.

5.Web Service Layer

In Webchat channel, user may need to login with Azure Active directory credentials, to get the report sent to corresponding email id. This has been implemented using Microsoft Graph concept.

In Skype for Business channel & for Resource management option, Bot can book the appointment or share the profiles using Office 365 Microsoft Flow concepts

Technology Stack:

- Microsoft Azure Bot Service – Controller deployed in Azure as App service Plan
- Microsoft Azure SQL Database
- C# .NET MVC – Web App deployed as App Service Plan
- LUIS – NLP tool of Microsoft
- QnA Maker - Knowledge base Cognitive Service
- Office 365 – Collaboration & document management
- Speech API – Cognitive SDK of Microsoft

Salient Features:

- Proactive recommendations for next level planning
- 24x7 real time data assistant on different channels
- Predications, Guidance based on Live status
- Easy & Quick Interaction through Natural Language Processing