**Virtual Scrum Master**

**Introduction:** This is a help document for Virtual Scrum Master Bot. It details out overall solution along with problem definition. It is being developed for **“AWS chat-bot challenge 2017”.**

This document is created for evaluation team to help them execute the steps and review the solution.

**Problem Definition:**

IT folks are usually occupied and overloaded with development & QA work. Thus they tend to miss on updating their daily progress & status of task they worked on. Such miss in updates create big risk for software project and may lead to problems like lack of traceability & delivery slippage. This can eventually result in loss of business.

**Proposed Solution:**

We believe big differences can be created with small but “smart & effective” ideas. So we thought to create Virtual Scrum Master, a companion for every engineer working on IT projects. It will engage with them and help them easily log key & timely happenings, updates that can make big difference.

Proposed solution is to leverage human like conversational Chat-bots\* to engage with engineers on the channels they visit the most, like, social messenger (Facebook). Combination of social channel & engaging chat-bot empowers team members with ease of access to scrum management tool and thus task status update is no more a problem as it can be done on the move. This will assure current project health can be monitored and risks can be mitigated in timely fashion.

Chat-bot\* is a smart software, which along with AI can connect with end users via “human like conversation”.

**How we built it?**

We have leveraged power of following technologies for overall solution.

* **Amazon Lex:** We have used Amazon Lex for building conversational chatbots with natural language understanding (NLU) to recognize the intent of text. Lex enabled us to build applications with highly engaging user experience and lifelike conversational interactions. Lex’s deep learning allowed us to quickly and easily build sophisticated, natural language, conversational bots (“chatbots”)
* **Amazon Lambda:** We have usedAmazon Lambda as the backend for validating user inputs to Lex during conversation and also for fulfilling user request to update task when all valid inputs are provided
* **Enterprise connectors like (Rally/Version One):** These enterprise connectors are integrated with Lambda to fetch & update data from Scrum tool residing at enterprise backend. In this case, validation Lambda via enterprise connector would be fetching user stories & tasks details from Rally to validate user inputs. Lambda will update the task status and other info once they are available during the concluding fulfillment phase.
* **Slack Bot App**: We have leveraged the Slack app to enable it, as front end of our chat bot. Slack is one of the ideal channels with its collaboration and team communication capabilities. It is perfect fit for a team (software project team in this use case). We have created Slack app virtual scrum master app and added its bot to software project team slack channel. In our case, software project is virtual scrum master as well
* **Facebook Messenger Platform**: We have leveraged the Facebook messenger platform to enable Facebook Messenger, as front end of our chat bot. Facebook messenger will provide maximum reach, as it is one of the most popular social messaging channels in the world. We have hooked-up Facebook messenger with Virtual Scrum Master Lex bot by defining it as one of the channel under Lex bot.

**Get Started**

To test this solution, use one of the following channels:

* Slack
* Facebook Messenger

**For connecting on Slack**- Join on Slack channel for Virtual Scrum invitation link:<https://join.slack.com/t/virtualscrummaster/shared_invite/MjEzMjE1MTM2NzUyLTE1MDAzMTMzOTctYTNmMmFhOGMyZQ>

Once subscribed to Slack channel, select virtualscrummaster app from left panel to start conversation

**For connecting on Facebook Messenger**-

Either

* Open following link on your mobile device with Facebook Messenger <https://www.messenger.com/t/757473784415487>

Or

* Login to [Facebook.com](https://www.messenger.com/t/757473784415487) with test user “stef.devpost.1” Or
* Login with Facebook account temporary credentials (our Facebook bot is pending for approval, therefore these temporary credentials are given):
* Username: raja.pateriya89@gmail.com
* Password: Test@123
* Go to messenger
* Search for *“Scrumtaskmanager”* or click on <https://www.messenger.com/t/757473784415487>
* Click on “Get Started” button
* Send “Hi” & follow the instructions

**Test Environment Details:** You can use our test Rally account for user story & task creation. Existing tasks can be modified using **Virtual Scrum Master’s** Slack & Facebook channel.

* Rally account test credentials:
  + Username: raja.pateriya@gmail.com
  + Password: test@123
* Rally API key: \_Dl8a4ejcQ4WTcq4ExdxbvF3mb1d2eUsNo6v43LThc
* Test Activation Number1: 1212
* Test Activation Number2: 3232
* Test Activation Number3: 5454
* Test Activation Number4: 1234

**User workflows:** There are three major flows 1. User pooling 2. User Registration & 3. Task status update

**User Polling:** This feature works in background, and our scheduler pools new users from Rally account. Every time when there is a new user added on Rally account, our scheduler adds that user in our database and a welcome email with activation number is delivered to registered email address of Rally user. That email has all the needed instructions for user to get started with Virtual Scrum Master.

**User Registration:** User registration is a one-time process where you need to provide your activation number received in the welcome email & Rally API key (Rally API key is mandatory for account activation).

**How to generate Rally API key?**

* Login to <https://rally1.rallydev.com/login> with valid credentials
* Move to API key Tab
* Crate API key with "full access"
* API key is generated

**User registration steps:**

* Launch your Facebook messenger app!
* Search for *“scrumtaskmanager”* & navigate to the page
* Click on Get started button
* For registration, you need to provide your activation number received in welcome email
* Once done, please provide your Rally account API key
* That's it, now you can start updating your scrum task status

**Task status update:** Once user registration is done, you can update task with their current status and can log time for efforts invested and remaining efforts. We have created test data on Rally account.

**Task status update steps:**

* You can search tasks by its name or keyword (please provide following keyword as task description “Intent Creation” or “User Registration” or “TFS”)
* Virtual Scrum Master will search for tasks matching to this keyword on scrum tool
* Bot will present you with search results for matching tasks
* Now, you need to log efforts for selected task
* Once done, please select the current status like In-Progress, Completed or Defined
* Last step is, your need to mention remaining efforts for this task
* Congratulation, Virtual Scrum Master has successfully updated the status of task on scrum tool on your behalf

**Accomplishment:** This solution is a great help when it comes to easing out key operations like task update, which result in timely handling of critical issues. Use of social channels like **Facebook**, which has a max reach for key operations that can have positive impact on project management & execution. Hence it can have great impact on overall business.

**Challenges we faced:**

There are quiet of few challenges we have faced while developing this solution and some of them are:

* We faced challenges while dealing with AWS Lex duration slots values
* AWS Lex, does not provide an option to create copy of existing bot
* Facebook has a default timeout where a response from bot is expected, hence there could be more option added in utterances (like wait) to notify front end to keep waiting if processing is taking more time then expected
* There were occasion when AWS Lex web UI was not responding and we had to wait for almost an hour to resume our work
* We observed, “technical error occurred” from Amazon Lex few times, which given an indication that some is wrong at AWS side. This user experience can be improved.