**CS410 Fall 2021 Project Proposal**

**Project Title :** Retrieving & ranking customer communication/complaints for optimal routing & resolution of customer concerns

# of team members : 1 Team Name : KMX

Captain : Sathish Rama

Team Member : Sathish Rama

NetID : sbrama2

Free Topic: Retrieving & ranking customer concerns/complaints using text retrieval and ranking techniques in a enterprise setup to assign the customer concern/complaint for resolution to right customer care team/associate there by addressing the complaints in timely manner given customer care team capacity constraints. Across several organizations, one of the challenges is to optimize the customer care team productivity by identifying & resolving customer complaints in timely fashion. The challenges faced in today’s setup are complaints don’t get the needed attention and are routed to incorrect care teams or a customer needs to call multiple times and talk to several customer care associates to eventually get right resolution. Building a end to end complaints handling/management system needs large effort, so in this project I will focus on demonstrating retrieval using query terms and ranking complaints so top ranked complaints can be picked up first for resolution.

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| Task Id | Task Description | Approx. Efforts in hours |
| 1 | Identify publicly available customer concerns dataset that can be used for this project | 1 |
| 2 | Define/design retrieval strategy - query terms & ranking rules based on the dataset ( say based on product lines, categories, define common query terms, based on product lines define ranking rules etc ) | 3 |
| 3 | Dataset cleanup, feature engineering – remove duplicates, blanks, invalid rows etc | 4 |
| 4 | Develop the core retrieval & ranking algorithm using query terms and ranking rules. Expected Outcome: Retrieve top complaints based on query & ranking rules and display in console. | 10 |
| 5 | Evaluation : Label ( query & ranks ) set of complaints and use this as reference to evaluate the output on non labelled set of complaints | 2 |
| 6 | Project Documentation & Submission | 4 |
| 7 | Stretch Goal ( if time permits ) : Create a conversational complaint search & retrieval interface to key in query & display ranked results as response using IBM Watson chat or AWS tools. Host the core retrieval & ranking algorithm on cloud as function and involve it from IBM Watson chat. | 10-20  (Optional ) |

Programming Language :

1. Core Retrieval & ranking : python, metapy
2. Conversation AI : IBM Watson & AWS Lambda ( optional; this is a stretch goal )