Answering all the questions from Section 4:

1. **What key insights can you uncover from the data?**

The insights I found are listing them here.

1. In User Engagement data, there are a lot of users who spent very less time on the platform and sent more messages and still given very less feedback rating. In contrast to this, there are a lot of users who spent a lot of time on the platform and sent few messages and given less rating which is replica of spending passively. This contributes to the less engagement of the app.
2. In User engagement data, the greatest number of resources clicked is 6.
3. From Recommendations data, a lot of users doesn’t receive any kind of recommendation. Also, there are few users who received a recommendation in one or more forms (Blog, Podcast, Video).
4. From recommendations, the Video recommendation has highest click\_through\_rate.
5. Sessions moderated by highly responsive and efficient moderators consistently show higher user satisfaction and engagement scores.
6. The moderator data clearly shows that the moderators who moderated more chat\_sessions have higher user\_satisfaction\_score and less avg\_response\_time compared to less chat\_sessions moderators.
7. **How would you measure engagement or effectiveness across these datasets?**

To define the engagement or effectiveness across these datasets, I have defined three metrics. They are calculated per user and listed below.

1. **Engagement Score:** This metric is used to calculate engagement score by giving importance to session length and message length and giving importance to feedback rating. It is calculated as follows.

*Engagement score = (session\_length/max\_session\_length)\*0.4 + (messages\_sent/max\_messages\_sent)\*0.4 + (feedback\_rating/max\_feedback\_rating)\*0.2*

Here, the metric is used to evaluate user participation and satisfaction.

1. **Responsiveness Efficiency:** This metric is used to calclulate responsiveness efficieny by dividing avg\_reponse\_time and user\_satisfaction\_score. Finally diving by 5 to normalize it.

Responsiveness Efficiency = (1/(avg\_response\_time+1))x(user\_satisfaction\_Score/5)

1. **Recommendation Conversion Rate (RCR):** This metric is used to calculate the engaged recommendations per total users who received recommendations. The engaged recommendations are someone who has click\_through\_rate>0 and feedback\_score> median\_feedback\_Score to ensure that feedback\_score is not randomly given.

RCR = (engaged\_users/total\_recommendation\_users)x100

This metric meaningful user engagement with recommendations by focusing on both click-through rates and feedback quality.

1. **What trends or patterns stand out to you, and why are they important?**

The trends that stand out are.

1. As stated in question1, Users are more engaged in sessions moderated by efficient and responsive moderators, highlighting the importance of moderator quality.
2. There are few users engages deeply in shorter sessions, indicating that quick, meaningful interactions can be as valuable as longer ones.
3. Out of all recommendations type, Videos has the highest click\_through\_rate but has the lowest feedback\_scores. This is clearly suggesting that the users are not satisfied with the recommendations.
4. **Are there any areas of concern or anomalies that require attention?**

There are few areas of concern, I also created a separate document creating all the anomalies. But in short

1. Users with long session times but minimal interactions indicate the passive time spent online but not engaging, which can skew engagement metrics. I tried to resolve this by giving importance to the different columns in the metric.
2. There are 606 users that didn’t received any kind of recommendations, representing a missing opportunity to boost engagement.
3. The moderator data clearly shows that the moderators who moderated more chat\_sessions have higher user\_satisfaction\_score and less avg\_response\_time compared to less chat\_sessions moderators
4. **Based on your findings, what recommendations would you make to improve**

**platform performance or user experience?**

1. The platform that I built can be enhanced more by implementing a proper recommendation system, due to poor data quality the recommendations received by the users are not satisfied the users.
2. It’s better if I can be able to build the data that has user and moderator relationship. By this the moderator can understand user behaviour and do a good recommendation among blog, podcast, and video.
3. We can boost engagement by promoting the user to click on the recommendation by providing promotional offers, things trending on the internet etc.,