**Technical Round 1: Analytics Proposal**

**1. Total Number of Groups**

Description: Counts the total number of groups. Helps admins understand the scale of groups they are managing.

**2. Group Types Distribution**

Description: Shows the distribution of group types (e.g., public, private). Helps admins understand the composition of groups.

**3. Average Members per Group**

Description: Calculates the average number of members across all groups. Helps admins identify the typical group size.

**4. Groups with Most Admins**

Description: Lists groups with the highest number of admins. Helps admins identify well-managed groups.

**5. Groups with Most Bots**

Description: Lists groups with the highest number of bots. Helps admins identify automation-heavy groups.

**6. Pinned Messages Analysis**

Description: Analyzes the content and frequency of pinned messages. Helps admins understand important announcements.

**7. Group Visibility Analysis**

Description: Shows the distribution of group visibility (e.g., public, restricted). Helps admins understand privacy settings.

**8. Groups with Zero Members**

Description: Identifies groups with no members. Helps admins clean up inactive groups.

**9. Groups with Most Pinned Messages**

Description: Lists groups with the highest number of pinned messages. Helps admins identify highly active groups.

**10. Group Growth Over Time**

Description: Tracks the growth of groups over time. Helps admins monitor the popularity of groups.

**11. Total Number of Members**

Description: Counts the total number of members across all groups. Helps admins understand the user base.

**12. Bot vs Human Members**

Description: Shows the ratio of bot members to human members. Helps admins understand automation levels.

**13. Member Role Distribution**

Description: Shows the distribution of member roles (e.g., admin, member, moderator). Helps admins understand group hierarchy.

**14. Members Joined Over Time**

Description: Tracks the number of members joining groups over time. Helps admins monitor group growth.

**15. Members with No Group**

Description: Identifies members who do not belong to any group. Helps admins clean up inactive users.

**16. Most Active Members**

Description: Lists members who are part of the most groups. Helps admins identify highly active users.

**17. Members with Longest Tenure**

Description: Lists members who have been in groups the longest. Helps admins identify loyal users.

**18. Members with Shortest Tenure**

Description: Lists members who have recently joined groups. Helps admins monitor new user activity.

**19. Members with Most Admin Roles**

Description: Lists members who are admins in the most groups. Helps admins identify key users.

**20. Members with No Role**

Description: Identifies members who have no assigned role. Helps admins ensure proper role assignment.

**Technical Round 2 – Admin Dashboard Design**

**Group Management Analytics**

1**. Active Groups Over Time**

Description: Line chart showing daily/weekly active groups. Helps admins monitor engagement trends.

**2. Group Health Score**

Description: Composite metric (activity + growth + moderation) to rank group health. Identifies groups needing attention.

**3. Admin-to-Member Ratio**

Description: Bar chart comparing admins to members per group. Ensures balanced moderation.

**4. Groups with High Bot Activity**

Description: Table listing groups where bots exceed 20% of members. Flags automation-heavy groups.

**5. Inactive Groups**

Description: List of groups with no messages in 30+ days. Helps clean up unused spaces.

**6.Pinned Message Engagement**

Description: Tracks views/replies on pinned messages. Measures effectiveness of announcements.

**7. Group Visibility Trends**

Description: Pie chart showing public vs restricted groups. Monitors privacy preferences.

**8. Member Capacity Utilization**

Description: % of groups nearing member limits. Alerts admins to potential upgrades.

**9. New Group Creation Rate**

Description: Line chart of groups created weekly. Tracks platform growth.

**10. Bot Contribution Analysis**

Description: Pie chart showing bots’ share of total messages. Highlights automation reliance.

**Member Management Analytics**

**11. Member Growth Rate**

Description: Line chart of new joins per week. Tracks user acquisition.

**12. Role Distribution**

Description: Stacked bar chart of admins/mods/members per group. Ensures role balance.

**13. Top Influencers**

Description: Leaderboard of users with most message forwards. Identifies key contributors.

**14. Member Churn Rate**

Description: % of members leaving groups monthly. Highlights retention issues.

**15. Cross-Group Activity**

Description: Table of members active in 5+ groups. Flags super-users.

**16.Join-to-Activity Lag**

Average time for new members to send their first message. Measures onboarding success.

**17.Member Tenure Distribution**

Description: Histogram showing how long members stay. Identifies loyalty trends.

**18.Admin Response Time**

Description: Average time for admins to reply to messages. Monitors moderation efficiency.

**19. Suspicious Account Alerts**

Description: Flags accounts with spam-like behaviour (e.g., rapid message bursts).

**20.Role Assignment Gaps**

Description: Lists groups with <2 admins. Ensures adequate moderation.

**Message & Content Analytics**

**21. Peak Activity Hours**

Description: Heatmap showing message volume by hour. Optimizes moderation shifts.

**22.Message Sentiment Trends**

Description: Line chart of positive/neutral/negative messages. Monitors group morale.

**23.Media Type Popularity**

Description: Pie chart of images/videos/documents shared. Guides content policies.

**24.Top Shared URLs**

Description: Bar chart of most-shared domains. Detects spam or trends.

**25.Hashtag Frequency**

Description: Word cloud of popular hashtags. Identifies trending topics.

**26.Message Deletion Rate**

Description: % of messages deleted by admins. Measures moderation strictness.

**27.Viral Content Alerts**

Description: Messages with >100 forwards. Highlights viral posts for review.

**28.Reply-to-View Ratio**

Description: Scatter plot comparing replies vs views. Identifies engaging content.

**29.Moderation Actions Timeline**

Description: Line chart of bans/warnings over time. Tracks enforcement patterns.

**30.Security Alerts**

Description: Detects messages with suspicious links. Prevents phishing attacks.