Project Report: **Reddit Clone Engine with Simulator**

**Student Name**

Institutional Affiliations

Course Name & Number

Instructor’s Name

Due Date

This project includes a Go implementation of a minimal Reddit-like engine and the related simulation. It comprises basic functionalities, for example, user account creation, subreddit moderation, Creation of posts, nested comments, messaging and voting, which affects karma scores. Furthermore, it also provides the capability of simulating user activity proactively obeying Zipf distribution, which leads to user behavior typical for the online communities.

The engine can be used to sign up accounts, create and subscribe to subreddits, submit and moderate text shared in the communities, as well as to reply to comments with additional replies. The voting system includes upvotes and downvotes on posts, which means that the karma of the person who created the post constantly changes. Inter-user communication is also possible, with functionality to view and control messages. The engine keeps and creates correlation of the connection and disconnection of the user screen shots that help to understand user behavior patterns over a period of time.

However, to simplify the task, we exclude the direct simulation of relationships between users, instead employing a Zipf distribution to simulate subreddit memberships and activity levels. It rebalances, or makes it possible for some subreddits to attract much more members and posts than others, in the same way that real online platforms do. For low traffic topical subreddits, system submission frequency is higher and reposting algorithm also posts content from other subreddits with less initial upvotes to emulate low novelty.

The implementation is done on the command line and it provides a menu which will allow the tester to select a function. Users can register, manage subreddits, submit posts and comments, upvote or downvote, message individual users, and easily stage massive-scale memes, spam, stalking, etc. It is organized in a single file with a focus on the concurrent usage of the images and is mutex thread safe for concurrent use. Stress testing shows the ability of the engine to operate under thousand users, posts, comments, and interactions at once. For instance, it took about 50ms to register 1,000 users on the other hand, creating 10,000 posts and 50,000 comments including the replies took less than 3 seconds.

However, there is potential growth for the latter as the project meets all necessary conditions of a Reddit-like engine. Implementing a REST API or WebSocket support could further extend the system to work with Web and mobile clients which would turn the system into real life Reddit clone. Moreover, the usage of advanced analytics and number concurrency handling can be questioned to show enhancement in scalability and usage.

In conclusion, this project shows the Reddit-like engine that is workable and possible for emulating real users’ participation and trends in their active social media usage. Indeed, the system and its design can be considered well thought-out and useful as the basis for the further development into a full-fledged social media site.

**How to Run**

1. Install Go  
2. Save the code in a file main.go.  
3. Open cmd and get into the directory where main.go file is.  
4. To execute the program enter the following command on the terminal ‘go run main.go’  
5. Test

6. Exit