**Reddit Clone Engine and Simulator**

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**Overview**

This project implements a Reddit-like engine and a simulator to test its performance and scalability. The engine supports user registration, subreddit management, posting, commenting, and voting. The simulator mimics user interactions to generate meaningful metrics.

**Instructions to Run:**

1. Clone the repo and open:

git clone **git@github.com:kakugri/redditClone.git**

cd redditClone

1. Run Engine in terminal using:

*go run cmd/engine/redditEngine.go*

1. Run Simulator in separate terminal connects to the engine and generates activity. Metrics are logged every minute.:

go run cmd/simulator/redditSimulator.go

**Features:**

**Engine**

* Register and manage user accounts.
* Create, join, and leave subreddits.
* Post, comment, and upvote/downvote content.
* Send and receive direct messages.
* Compute and track metrics like karma.

**Simulator**

* Mimics thousands of user interactions.
* Models disconnection/reconnection behavior.
* Generates performance metrics.

**Directory Structure:**

* internal/engine: Core engine logic and models.
* internal/simulator: Simulator logic for user actions.
* cmd/engine: Entry point for the engine.
* cmd/simulator: Entry point for the simulator.
* internal/proto: Protobuf definitions for communication.

**Metrics**

The engine periodically reports metrics, including:

* Total posts
* Total comments
* Total votes
* Active users
* Total messages

Logs are available in the terminal during runtime.

**Largest Network Size Tested:**

* The implementation was successfully tested with a maximum of 100,000 nodes.