

API Design Assignment 3

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Link to repo

<https://github.com/zhixuanevelynwu/api-a3-gRPC.git>

Protocol Buffer Definitions

```
JavaScript
message User {
  // a human readable id
  string id = 1;
}

message Post {
  // a human readable id
  string id = 1;

  // title, some text, one of video or image url
  string title = 2;
  string content = 3;
  oneof media {
    string image_url = 4;
    string video_url = 5;
  }

  // optional author
  optional string user_id = 6;

  // a score, can be negative
  int32 score = 7;

  // a state: normal, locked, hidden
  enum PostState {
    NORMAL = 0;
    LOCKED = 1;
```

```

    HIDDEN = 2;
}
PostState state = 8;

// a publication date
string publication_date = 9;
}

message Comment {
    // a human readable id
    string id = 1;

    // the post or comment it is under
    oneof parent {
        string parent_post_id = 2;
        string parent_comment_id = 3;
    }

    // must have an author
    string user_id = 4;

    // must have some text
    string content = 5;

    // have a score
    int32 score = 6;

    // can be normal or hidden
    enum CommentState {
        NORMAL = 0;
        HIDDEN = 1;
    }
    CommentState state = 7;

    // a publication date
    string publication_date = 8;
}

message CreatePostRequest {
    // title, some text, one of video or image url
    string title = 1;
    string content = 2;
    oneof media {
        string image_url = 3;
        string video_url = 4;
    }
}

```

```

    }

    // optional author
    optional string user_id = 5;
}

message VotePostRequest {
    // the post id
    string id = 1;
}

message RetrievePostRequest {
    // the post id
    string id = 1;
}

message CreateCommentRequest {
    // the post or comment it is under
    oneof parent {
        string parent_post_id = 1;
        string parent_comment_id = 2;
    }

    // must have an author
    string user_id = 3;

    // must have some text
    string content = 4;
}

message VoteCommentRequest {
    // the comment id
    string id = 1;
}

message RetrieveTopNCommentsRequest {
    // post id to retrieve comments for
    string id = 1;

    // how many comments to retrieve
    int32 N = 2;
}

message CommentWithHasReplies {
    Comment comment = 1;
}

```

```

    bool has_replies = 2;
}

message RetrieveTopNCommentsResponse {
    repeated CommentWithHasReplies comments_with_has_replies = 1;
}

message ExpandCommentBranchRequest {
    // comment id to expand
    string id = 1;

    // how many comments to retrieve
    int32 N = 2;
}

message CommentWithReplies {
    Comment comment = 1;
    repeated Comment replies = 2;
}

message ExpandCommentBranchResponse {
    // top n comments with top n replies
    repeated CommentWithReplies comments_with_replies = 1;
}

```

Service definitions, alongside with input/output Protocol Buffers

```

JavaScript
service RedditService {
    rpc CreatePost(CreatePostRequest) returns (Post);
    rpc UpvotePost(VotePostRequest) returns (Post);
    rpc DownvotePost(VotePostRequest) returns (Post);
    rpc RetrievePostContent(RetrievePostRequest) returns (Post);
    rpc CreateComment(CreateCommentRequest) returns (Comment);
    rpc UpvoteComment(VoteCommentRequest) returns (Comment);
    rpc DownvoteComment(VoteCommentRequest) returns (Comment);
    rpc RetrieveTopNComments(RetrieveTopNCommentsRequest) returns
(RetrieveTopNCommentsResponse);
    rpc ExpandCommentBranch(ExpandCommentBranchRequest) returns
(ExpandCommentBranchResponse);
}

```

```
}
```

Storage backend being used

I used a dummy storage (in-memory structures). I generated around 100 posts, 150 comments, and various replies for each comment. You can find the data generation code at [db.py](#).

Two links, pointing to implementation of the Server and the Client

- Server: https://github.com/zhixuanevelynwu/api-a3-gRPC/blob/main/reddit/reddit_server.py
- Client: https://github.com/zhixuanevelynwu/api-a3-gRPC/blob/main/reddit/reddit_client.py

Links to the implementation of the high level function and tests

- Function: <https://github.com/zhixuanevelynwu/api-a3-gRPC/blob/main/reddit/highlevel.py>
- Unit tests for all functions (this is a folder containing all tests): <https://github.com/zhixuanevelynwu/api-a3-gRPC/tree/main/reddit/tests>
- Test for the high level function: https://github.com/zhixuanevelynwu/api-a3-gRPC/blob/main/reddit/test_highlevel.py