Mobile Developer Technical Test

Aequilibrium does love transforming... people, lives, teams, companies. And there's no better representation of transformation than Hasbro's Transformers, the classic television series featuring heroic Autobots raging their battle to destroy the evil forces of the Decepticons.

The Transformers are at war and you are in charge of settling the score! You're to create an application that evaluates who wins a fight between the Autobots and the Decepticons.

Please watch this video:
https://www.youtube.com/watch?v=nLS2N9mHWaw

Overview

The goal of the technical test is create a mobile application that provides a user interface for a provided API. The way in which the user interface is displayed is open-ended and we encourage you to be creative with your design.

Transformer definition

Each Transformer has the following criteria (ranked from 1 to 10) on their tech spec:
- Strength
- Intelligence
- Speed
- Endurance
- Rank
- Courage
- Firepower
- Skill

The "overall rating" of a Transformer is the following formula: (Strength + Intelligence + Speed + Endurance + Firepower).
Each Transformer must either be an Autobot or a Decepticon.

API definition

The Transformers API allows one to create, read, update or delete Transformers. Such abilities are bestowed upon an individual through the power of the AllSpark. More details about the API here:
https://transformers-api.firebaseapp.com/api-docs/

GET https://transformers-api.firebaseapp.com/allspark
- Returns a token that should be cached accordingly. For each subsequent requests to any of the '/transformers' endpoints below, the token must be attached to the request's header in the following format:

Key	Value
"Authorization"	"Bearer <token>"
"Content-Type"	"application/json"

POST https://transformers-api.firebaseapp.com/transformers
- Creates a Transformer with the provided data in the request body (in JSON). Note that the "overall rating" is not returned.

Request	Response

{
  "name": "Megatron",
  "strength": 10,
  "intelligence": 10,
  "speed": 4,
  "endurance": 8,
  "rank": 10,
  "courage": 9,
  "firepower": 10,
  "skill": 9,
  "team": "D"
}
	{
	  "id": "-LLbrUN3dQkeejt9vTZc",
	  "name": "Megatron",
	  "strength": 10,
	  "intelligence": 10,
	  "speed": 4,
	  "endurance": 8,
	  "rank": 10,
	  "courage": 9,
	  "firepower": 10,
	  "skill": 9,
	  "team": "D",
	  "team_icon": "https://tfwiki.net/mediawiki/images2/archive/8/8d/20110410191659%21Symbol_decept_reg.png"
	}

GET https://transformers-api.firebaseapp.com/transformers
- Gets a list of the Transformers you created using the POST API.

Response

{
  "transformers": [
    {
      "id": "-LLbrUN3dQkeejt9vTZc",
      "name": "Megatron",
      "strength": 10,
      "intelligence": 10,
      "speed": 4,
      "endurance": 8,
      "rank": 10,
      "courage": 9,
      "firepower": 10,
      "skill": 9,
      "team": "D",
      "team_icon": "https://tfwiki.net/mediawiki/images2/archive/8/8d/20110410191659%21Symbol_decept_reg.png"
    }
  ]
}

PUT https://transformers-api.firebaseapp.com/transformers
- Updates an existing Transformer with the provided data in the request body, the Transformer ID must be valid.

Request	Response

{
  "id": "-LLbrUN3dQkeejt9vTZc",
  "name": "Megatron123",
  "strength": 10,
  "intelligence": 10,
	{
	  "id": "-LLbrUN3dQkeejt9vTZc",
	  "name": "Megatron123",
	  "strength": 10,
	  "intelligence": 10,

```
    "speed": 5,
    "endurance": 8,
    "rank": 10,
    "courage": 9,
    "firepower": 10,
    "skill": 9,
    "team": "D"
}
```

```
    "speed": 5,
    "endurance": 8,
    "rank": 10,
    "courage": 9,
    "firepower": 10,
    "skill": 9,
    "team": "D",
    "team_icon":
"https://tfwiki.net/mediawiki/images2/archive/8/8d/201104
10191659%21Symbol_decept_reg.png"
}
```

DELETE https://transformers-api.firebaseapp.com/transformers/{transformerId}
- Deletes a Transformer based on the transformer ID passed in.

Requirements

Your application should meet the following criteria:
- The app must have the following:
  - A page to list all the current Transformers you have created. Each list item must display the team icon associated with the Transformer with their relevant stats and each list item must also be deletable and editable.
  - A page to create a new Transformer.
  - A button that wages a war between the Autobots and the Decepticons that you have created and displays the results in any way you like. **The basic rules of battle** are documented below.
  - The application must maintain its state after a restart, for example, if you create a Transformer and restart the app you should still see that same Transformer in the list and not an empty list.
  - Unit tests covering important functionality.
- You are free to use any libraries with the exception of UI libraries.
- Short document explaining how to build and start the project and assumptions made about the requirements.

For iOS developers:
- Application must target iOS 10 and above
- Application should be a responsive universal application
- Application can be built in either Objective-C or Swift (preferred)

For Android developers:
- Application must target Android 4.4, API level 19 and above
- Application should be responsive over multiple screen sizes
- Application can be built in Java

Bonus features:
- Documentation of classes
- Automated UI tests

The basic rules of the battle are:

- The teams should be sorted by rank and faced off one on one against each other in order to determine a victor, the loser is eliminated
- A battle between opponents uses the following rules:
    - If any fighter is down 4 or more points of courage and 3 or more points of strength compared to their opponent, the opponent automatically wins the face-off regardless of overall rating (opponent has ran away)
    - Otherwise, if one of the fighters is 3 or more points of skill above their opponent, they win the fight regardless of overall rating
    - The winner is the Transformer with the highest overall rating
- In the event of a tie, both Transformers are considered destroyed
- Any Transformers who don't have a fight are skipped (i.e. if it's a team of 2 vs. a team of 1, there's only going to be one battle)
- The team who eliminated the largest number of the opposing team is the winner

Special rules:
- Any Transformer named Optimus Prime or Predaking wins his fight automatically regardless of any other criteria
- In the event either of the above face each other (or a duplicate of each other), the game immediately ends with all competitors destroyed

For example, given the following input:
Soundwave, D, 8,9,2,6,7,5,6,10
Bluestreak, A, 6,6,7,9,5,2,9,7
Hubcap: A, 4,4,4,4,4,4,4,4

The output should be:
1 battle
Winning team (Decepticons): Soundwave
Survivors from the losing team (Autobots): Hubcap