Homework 1 APIs Documentation

Sizhe Liu

Overview:

- The server is implemented on app.js file only, which is allowed in homework 1.

Important Variables:

- ‘formulaId’ is for formula ID. It is unique and global. It will only be incremented.
- ‘planId’ is for plan ID. Same rule applies.

Data Structures:

- ‘plans’ is Map(). The key is the plan ID (number). The value is an array that holds formula IDs (numbers) that belong to a given plan. A plan cannot have duplicate formula. For example, if plan 0 already contains formula 1, you cannot add formula 1 to the plan again. Neither can you replace another formula other than 1 to formula 1 because that will introduce duplication. For example, if plan 1 has [0, 1], you cannot replace formula 0 to formula 1. The format of plans Map() looks like this as an example:

```
{
    0: [4,2,1]
}
```

- ‘formulas’ is Map(). The key is the formula ID (number). The value is an object. The object itself looks like the following:

```
const f1 = {
    "inputs": [{"name": "butter", "number": 2}, {"name": "egg", 
"number": 1},
            {"name": "sugar", "number": 1}, {"name": "flour", "number": 2},
            {"name": "baking soda", "number": 2}],
    "outputs": [{"name": "cookies", "number": 36}]
}
```

API:

POST /formulas

add a new formula to the pool of formulas.

Path parameters: None

Request body:

- a Json object that contains the input and output of a formula. Example:

```
{
    "inputs": [{"name": "wheel", "number": 4}, {"name": "steel frame", "number": 1}]
,

    "outputs": [{"name": "car", "number": 1}]

}
```

Response codes and body contents

- 201 – the formula is created.

Respond body:

- An object (array) that contains the id of the newly created formula.

GET /formulas/:id

See the inputs and outputs of a specific formula.

Path parameters:

- id: non-negative integer, determines which formula you want to inspect.

Request body: None

Response codes and body contents

- 200 - all OK.
- 400 - the formula does not exist.

Respond body:

- An object that contains the content of the formula (input and output).

GET /plans/formulas/:id

List which plans contain a specific formula.

Path parameters:

- id: non-negative integer, determines which formula you are looking for from all the plans.

Request body: None

Response codes and body contents

- 200 - all OK.

Respond body:

- An object (array) that contains all the plans (id in number) that has this formula.

POST /plans

Add a new plan.

Path parameters: None

Request body: None

Response codes and body contents

- 201 - a new plan is created.

Respond body:

- An object (array) that contains the id of the newly created plan.

POST /plans/:id/formula

Append a formula to the end of a plan.

Path parameters:

- id: non-negative integer, determines which plan to add a formula to.

Request body:

- a Json object: key = ‘id’, value = formula id in integer. Example:

```
{
    "id": 4
}
```

Response codes and body contents

- 200 - the formula is added to the end of a plan.
- 400 - request body is empty || the plan does not exist || the formula does not exist || the formula exists but already in this plan.

Respond body: None

PATCH /plans/:id/formula

Replace a formula anywhere in the sequence of formulas associated with a plan.

Path parameters:

- id: non-negative integer, determines which plan you want to access.

Request body:

- a Json object that contains: an object of old formula id (to be replaced) and an object of new formula id (the replacement). Example:

```
{
    "oldId": 1,
    "newId": 0
}
```

Response codes and body contents

- 200 - all OK.
- 400 - the request body is empty or does not contain both old id and new id || the plan does not exist || the old formula (id) does not exist in the plan || the new formula (id) does not exist in the database (memory for this homework) || the new formula (id) is already in the plan.

Respond body: None

GET /plans/:id

List all the formulas contained in a plan.

Path parameters:

- id: non-negative integer, determines which plan.

Request body: None

Response codes and body contents

- 200 - all OK.
- 400 - this plan does not exist.

Respond body:

- An object (array) that contains all the formulas in this plan.

DELETE /plans/:id

Delete a plan.

Path parameters:

- id: non-negative integer, determines which plan.

Request body: None

Response codes and body contents

- 204 - this plan is deleted.
- 400 - this plan does not exist.

Respond body: None