Mutation testing - APIControllers

Testing framework: Mocha@10.8.2 **Assertion library used**: Chai@4.3.4

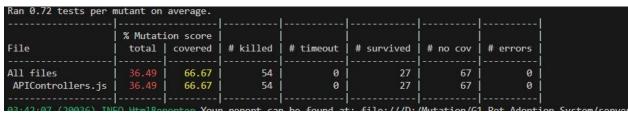
Other: Sinon@19.0.2

Scope of Testing:

The test cases are designed to validate the functionality of the following methods in the PetController module:

- getAllPets: Retrieves all pets from the database, with optional filtering by category.
- createPet: Handles the creation of a new pet, including validation and image upload functionality.
- updatePet: Allows updating the details of an existing pet, including updating images and other pet information.
- deletePet: Deletes a pet from the database and handles associated errors.
- getPet: Retrieves the details of a single pet by ID

Below is the result obtained by running the test file on the mutated code:





Arithmetic mutator

```
- const blob = bucket.file(Date.now() + path.extname(file.originalname));
+ const blob = bucket.file(Date.now() + path.extname(file.originalname));

ArithmeticOperator Survived (53:34)  More

Covered by 1 test (yet still survived)
```

Removing one argument

```
blobStream.on('error', (err) => {

blobStream.on("", (err) => {

StringLiteral Survived (58:23)  More

Covered by 1 test (yet still survived)
```

Changing the condition value to false

```
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```

Changing the condition value to true

```
if (name != null) res.pet.name = name; ● BlockStatement Killed
+ if (true) res.pet.name = name;

ConditionalExpression Survived (112:17) ▲ More

Covered by 1 test (yet still survived)
```

Changing the condition

```
if (gender != null) res.pet.gender = gender;

if (gender == null) res.pet.gender = gender;

EqualityOperator Survived (114:17)  More

Covered by 1 test (yet still survived)
```

Links to files:

<u>APIController.js</u> <u>apicont.js</u>