

CS340 Project Step 7
Group: 105
Title: D&D Turn Tracker
Team: Data Defense Force
Benjamin Church and Casey Cheek

URL: <http://flip3.engr.oregonstate.edu:3041/>

Summary of Feedback and Changes

Our project has had mostly the same scope since the initial proposal. As we worked through the actual implementation we changed a few minor things, e.g. the data for some attributes that were optional at the beginning are now required (NOT NULL).

One of our first changes was combining two entities into one table. We decided that the difference between a player character and a hostile enemy could be captured with a couple additional attributes in the Characters table (boolean values for `playerCharacter` and `hostileToPlayers`).

We also added a new attribute, `initiativeTotal`, to `Encounters_Characters` and changed the `Character` attribute, `initiative`, to `initiativeBonus`. Now, when a user enters their initiative dice roll on the turn order page, the roll is added to the `initiativeBonus` to get the `initiativeTotal`, and finally the `initiativeTotal` is used to determine the turn order for that encounter. This method ensures that encounters can have unique turn orders.

At one point we reworked the entire backend of the website to more closely follow the REST API. We added new js files for each page to handle all the routing, and then cleaned up the main node file to implement them. We felt this made the app more modular and a little easier to read. We also added functions for complicated queries and used promises to ensure that the asynchronous calls loaded in the correct order. Then after struggling with some of the data validation, we implemented some extra jquery code to help make sure that the user input was correctly filled in.

We received some feedback that we ended up not following. One student suggested that we add an overall game entity to capture all the encounters. We decided that would be a great step if we were planning on using the application for more than one game at a time, but for simplicity sake, we assumed that the user only has one game.

On the UI side of things, other students approved of the look of the website and we slowly added more readability to the site. For example, some queries returned a boolean value that we later displayed as a "yes" or "no".

Other students helped us find some bugs, and were overall very encouraging. Our app still has room to improve (user logins, multiple games, add more stats to characters, etc.), but we are very happy with our end product.

Project and Database Outline

Overview

In the game Dungeons and Dragons (D&D), players experience two basic forms of play: freeform role-playing sections based around storytelling and world building, and sections of turn-based combat, known as encounters. While D&D campaigns vary greatly in length, most contain several encounters. Small campaigns may have 5 or less while longer games can play through 30-100 encounters. One can imagine how it can be difficult for a Dungeon Master (DM) to manage multiple characters (3-15) through these action-filled combat scenarios. A database-driven, turn-managing website could make this process easier.

Our D&D Turn Tracker would allow a DM to keep track of the turn order of **Characters** during combat **Encounters**, show which **Characters** are affected by **Conditions** (up to 15 different conditions are possible), as well as help them keep track of any special **Items** held by the **Characters** (100s of unique items are possible).

Database Outline

Encounters: A game may have several encounters in which player characters and enemy characters (controlled by the DM) take turns in combat.

- enID: INT, AUTO_INCREMENT, Unique, NOT NULL, PK
- round: INT, NOT NULL, DEFAULT 1
- setting: VARCHAR(255)
- Relationship: 1:M between Encounters and Encounters_Characters. Each encounter may be represented zero or many times in Encounters_Characters. Each encounter in Encounters_Characters must be represented once in Encounters.

Characters: Each character is controlled either by a player or the DM. Characters have many different kinds of stats, but only some are necessary for the turn tracker. The most important of these is initiative, which determines the turn order.

- charID: INT, AUTO_INCREMENT, Unique, NOT NULL, PK
- name: VARCHAR(255), NOT NULL
- initiativeBonus: INT, NOT NULL
- playerCharacter: TINYINT(1), NOT NULL
- hostileToPlayer: TINYINT(1), NOT NULL
- Relationship:
 - M:M relationship between Characters and Conditions (see Characters_Conditions table). Multiple or zero conditions can affect multiple or zero characters.
 - 1:M between Characters and Encounters_Characters. Each character may be represented zero or many times in Encounters_Characters. Each character in Encounters_Characters must be represented once in Characters.
 - 1:M relationship between Characters and Items. A character can have zero or many items. Each item is held by one or zero characters.

Conditions: Conditions affect the way a character acts. They can hinder, enhance, or have a neutral effect on a character during combat.

- conID: INT, AUTO_INCREMENT, Unique, NOT NULL, PK
- name: VARCHAR(255), NOT NULL
- effect: VARCHAR(255)
- Relationship: M:M relationship between Conditions and Characters (see Character_Condition table). Multiple or zero conditions can affect multiple or zero characters.

Items: Items are carried by characters to grant them special abilities such as increased damage or defense.

- itemID: INT, AUTO_INCREMENT, Unique, NOT NULL, PK
- heldBy: INT, FK references charID
- name: VARCHAR(255), NOT NULL
- type: VARCHAR(255)
- quantity: INT, NOT NULL, DEFAULT 1
- effect: VARCHAR(255)
- isMagic: TINYINT(1), DEFAULT 0
- Relationship: 1:M between Characters and Items. A character can have zero or many items. Each item is held by one or zero characters.

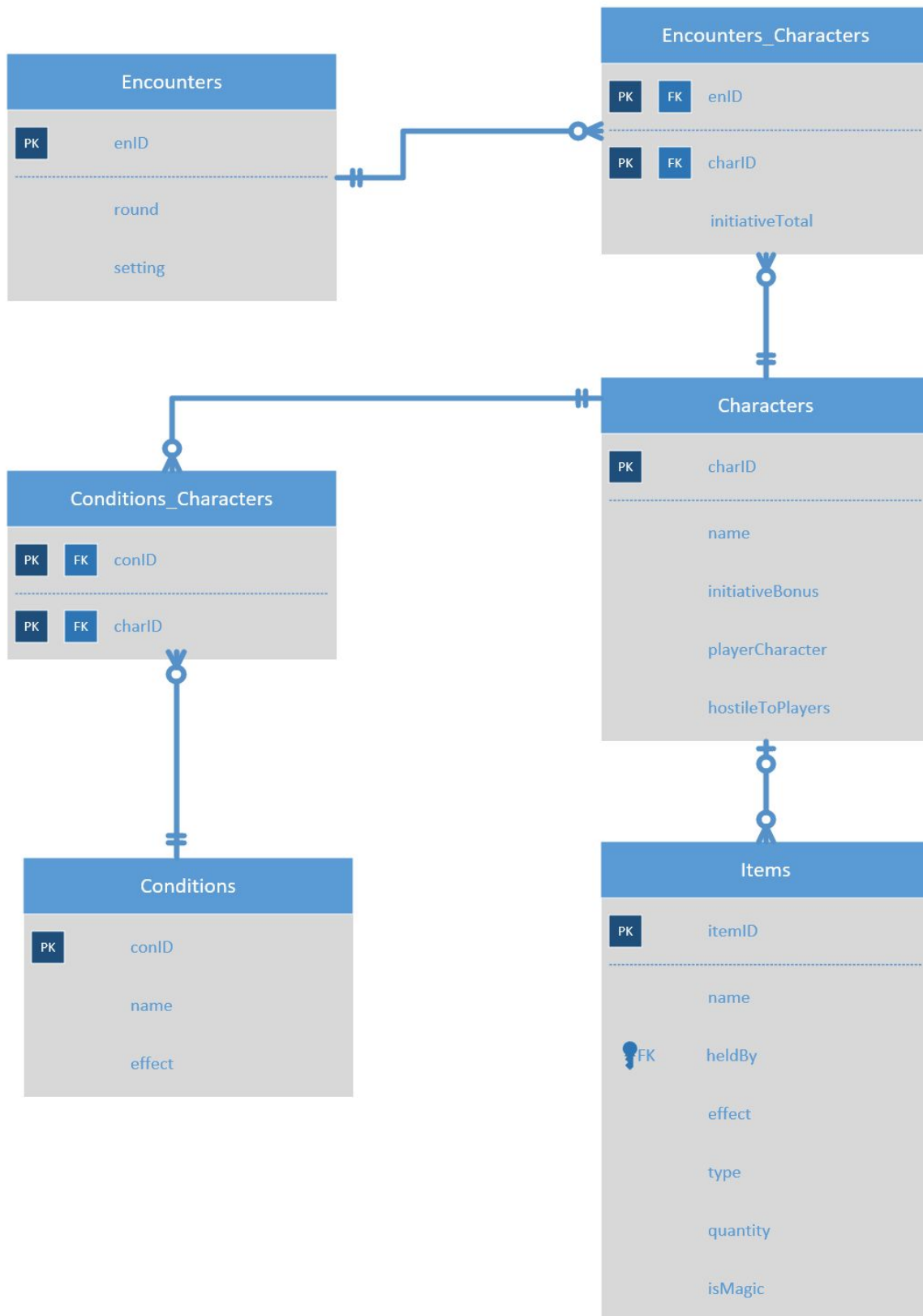
Encounters_Characters: Describes the relationship between Encounters and Characters and holds an additional attribute, initiativeTotal, which determines the character turn order for each encounter. Encounters_Characters PKs are the combined attributes, (enID, charID).

- enID: INT, NOT NULL, FK references enID
- charID: INT, NOT NULL, FK references charID
- initiativeTotal: INT
- Relationship:
 - 1:M between Encounters and Encounters_Characters. Each encounter may be represented zero or many times in Encounters_Characters. Each encounter in Encounters_Characters must be represented once in Encounters.
 - 1:M between Characters and Encounters_Characters. Each character may be represented zero or many times in Encounters_Characters. Each character in Encounters_Characters must be represented once in Characters.

Conditions_Characters: Describes the M:M relationship between Characters and Conditions. Multiple or no conditions can affect multiple or no characters. Conditions_Characters PKs are the combined attributes, (conID, charID).

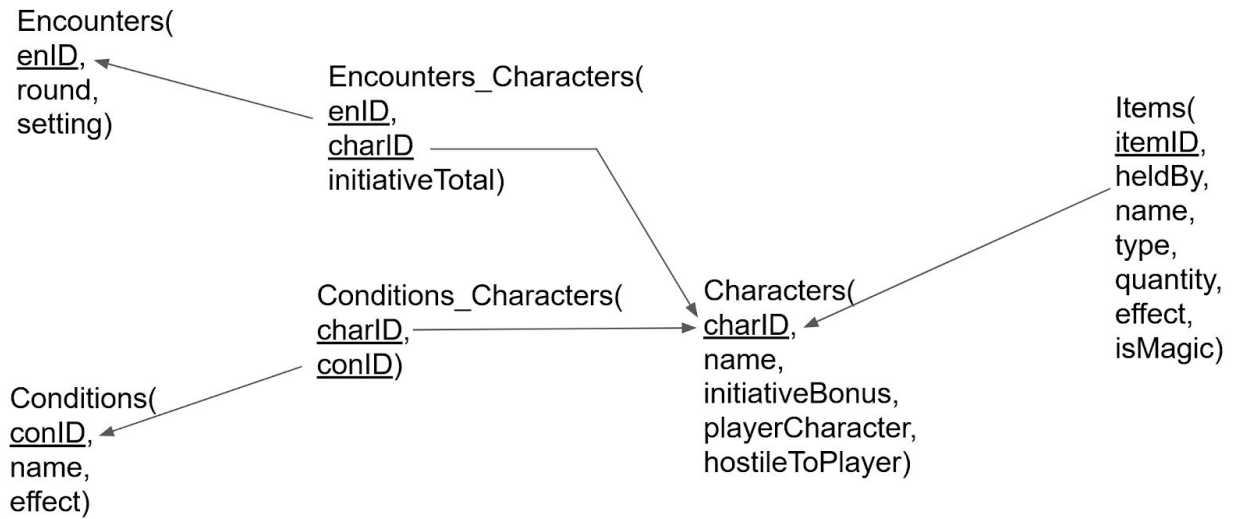
- conID: INT, NOT NULL, FK references conID
- charID: INT, NOT NULL, FK references charID

Entity-Relationship Diagram



Schema

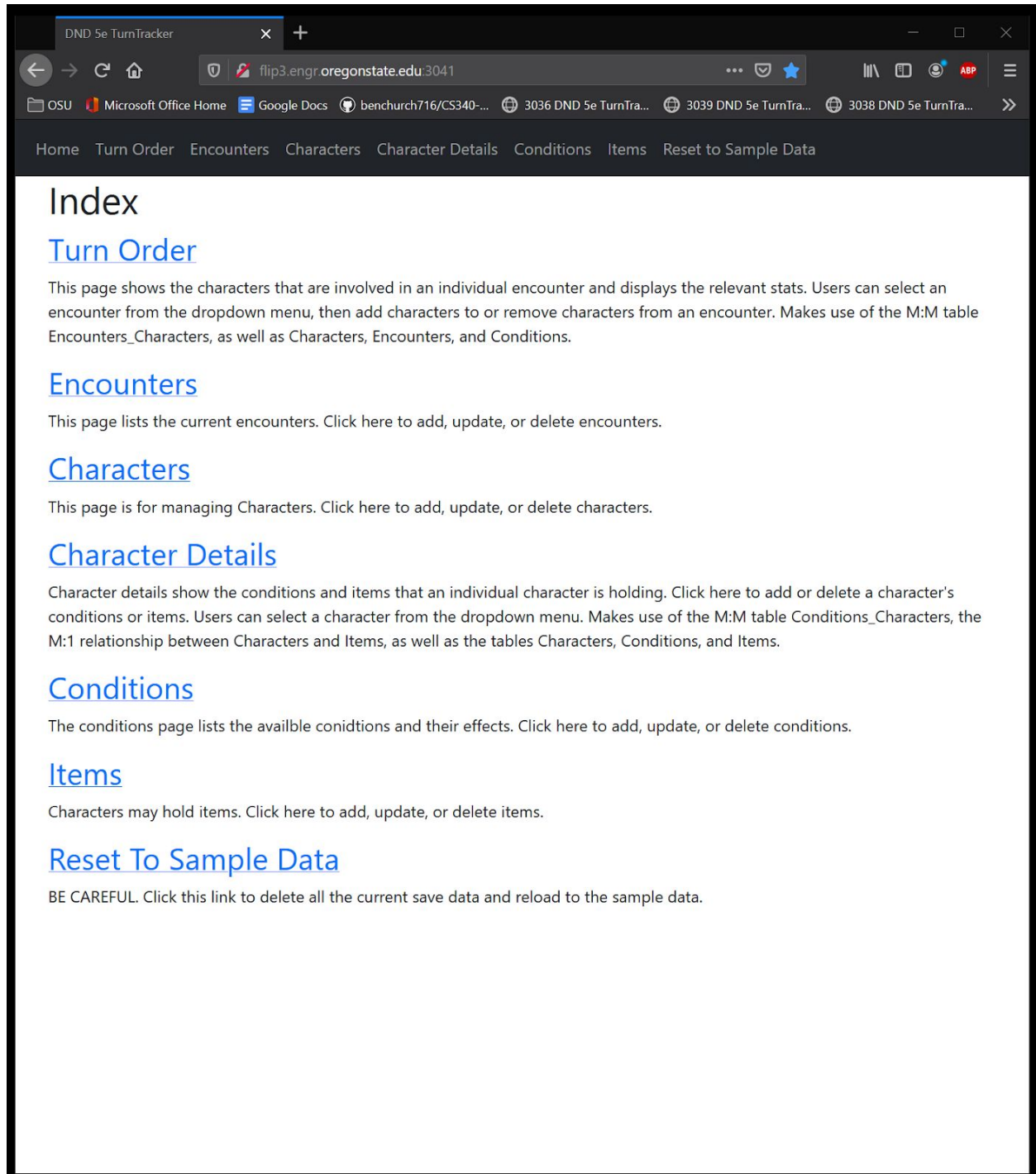
D&D Turn Tracker Schema By Casey Cheek and Ben Church



Screen Captures of the UI pages

Index

This page provides links and descriptions of the other pages.



Turn Order

CREATE/READ/DELETE Encounters_Characters

READ Conditions, Characters, Encounters

This page shows the characters that are involved in a selected encounter (encounter number 2 shown below). Users can select an encounter from the dropdown menu, then add characters to or remove characters from an encounter. Only characters that are not already associated with the selected encounter will be shown in the Add dropdown menu.

The screenshot shows a web browser window with the URL `flip3.engr.oregonstate.edu:3041/turnorder?enID=2`. The application has a navigation bar with links: Home, Turn Order, Encounters, Characters, Character Details, Conditions, Items, and Reset to Sample Data. The main heading is "Turn Order". Below it, a instruction says "Select an encounter from the dropdown menu to view the turn order." followed by a "Select Encounter" dropdown menu.

| Character Name | Initiative Total | Hostile to Players | Conditions | Player Character | |
|---------------------|------------------|--------------------|------------|------------------|-------------------------|
| Pip | 8 | No | Blinded | Player | <button>Remove</button> |
| Pop | 6 | No | Poisoned | Player | <button>Remove</button> |

Below the table, the heading "Add a Character to the Encounter:" is followed by a form. The form has two inputs: "Character" (a dropdown menu showing "Pap") and "Initiative Roll" (a numeric input field). A blue "Submit" button is to the right of the Initiative Roll field.

Character Details

CREATE/READ/DELETE Conditions_Charmers

READ/UPDATE Items

READ Charmers

This page shows a selected character's conditions and items (character "Pip" shown below). Users can select a character from the dropdown menu, then add or remove conditions and items from that character. Only conditions/items that are not already associated with that character will be shown in the Add dropdown menu.

The screenshot shows a web browser window with the URL `flip3.engr.oregonstate.edu:3041/characterdetails?charID=1`. The application has a dark-themed navigation bar with links: Home, Turn Order, Encounters, Characters, Character Details (active), Conditions, Items, and Reset to Sample Data. The main content area is titled "Character Details" and includes a dropdown menu to "Select Character". Below this, the character's name "Pip" is displayed. There are two sections: "Condition" and "Item".

Condition Section:

| Condition Name | Effect | |
|----------------|--|-------------------------|
| Blinded | Attack Rolls against the creature have advantage, and the creature's Attack Rolls have disadvantage. | <button>Remove</button> |

The selected character is affected by these conditions

Item Section:

| Item Name | Effect | Type | Quantity | Is it Magic? | |
|-----------------------|---------------------------|-------|----------|--------------|-------------------------|
| Sting | Long Reach | Spear | 1 | Yes | <button>Remove</button> |
| Ring of Spell Storing | Store a spell in the ring | Ring | 1 | Yes | <button>Remove</button> |

The selected character is holding these items

Add a Condition to this Character:

Condition: Submit

Add an Item to this Character:

Item: Submit

Encounters

CREATE/READ/DELETE Encounters

This page displays all encounters and allows a user to add or delete an encounter. Clicking an update link will bring the user to the Update Encounter page for that particular encounter.

| Encounter ID | Round | Setting | | |
|-----------------------------|-------|---------|--------|------------------------|
| Encounter 1 | 1 | Forest | Delete | Update |
| Encounter 2 | 4 | Caves | Delete | Update |
| Encounter 3 | 2 | Castle | Delete | Update |

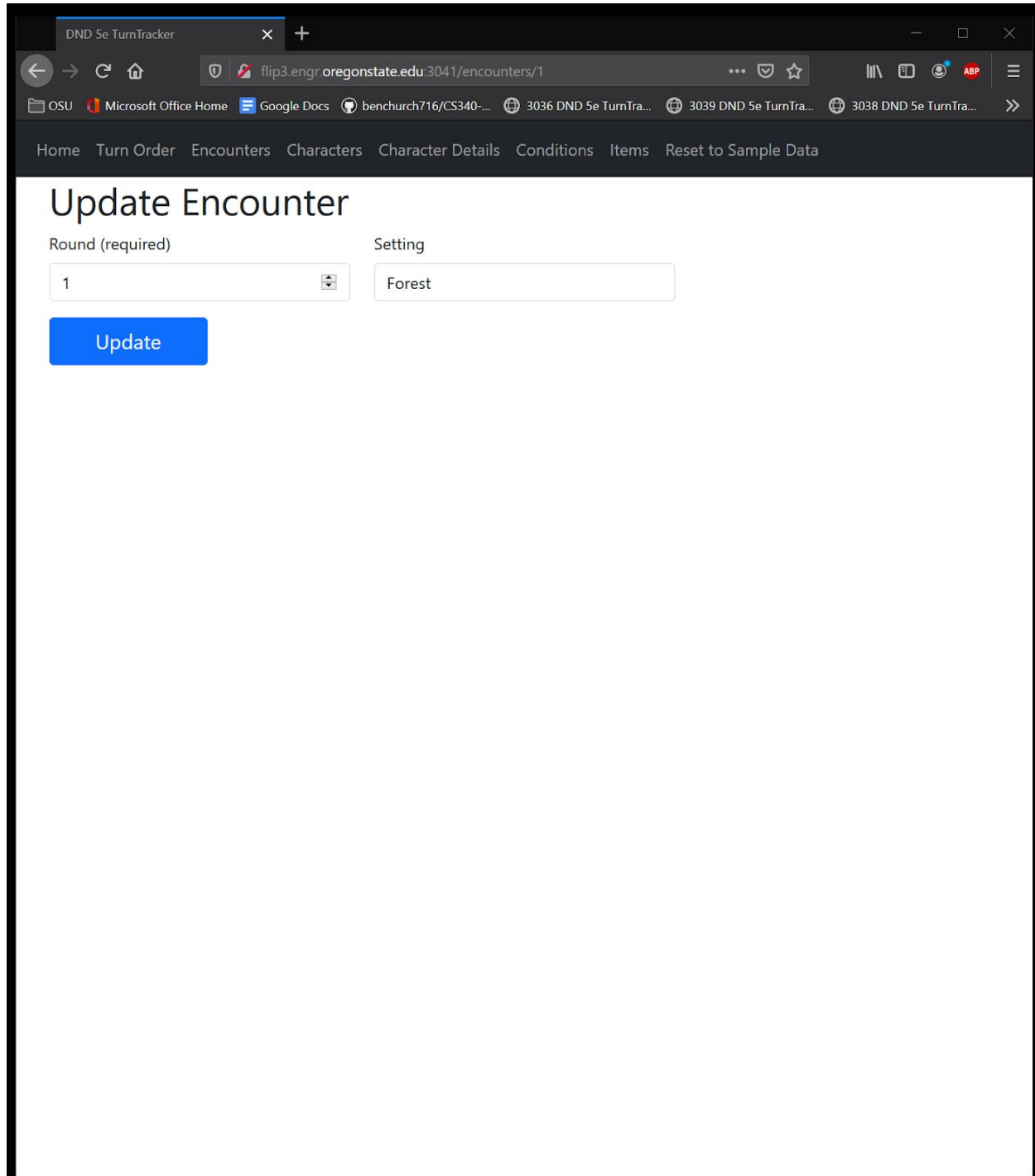
Add a new Encounter:

Round (required) Setting

Update Encounter

READ/UPDATE Encounters

This page allows a user to update the attributes of a specific encounter (encounter number 1 shown below). Each field is pre-populated with the current data for that encounter. The update button updates the data and returns the user to the Encounters page.



The screenshot shows a web browser window with the address bar displaying `flip3.engr.oregonstate.edu:3041/encounters/1`. The browser's tab is labeled "DND 5e TurnTracker". The page has a dark navigation bar with links: Home, Turn Order, Encounters, Characters, Character Details, Conditions, Items, and Reset to Sample Data. The main content area is titled "Update Encounter" and contains two input fields: "Round (required)" with the value "1" and "Setting" with the value "Forest". Below these fields is a blue "Update" button.

DND 5e TurnTracker

flip3.engr.oregonstate.edu:3041/encounters/1

OSU Microsoft Office Home Google Docs benchurch716/CS340-... 3036 DND 5e TurnTra... 3039 DND 5e TurnTra... 3038 DND 5e TurnTra...

Home Turn Order Encounters Characters Character Details Conditions Items Reset to Sample Data

Update Encounter

Round (required) Setting

1 Forest

Update

Characters

CREATE/READ/DELETE Characters

This page displays all characters and allows a user to add or delete a character. Clicking an update link will bring the user to the Update Character page for that particular character.

The screenshot shows a web browser window with the URL `flip3.engr.oregonstate.edu:3041/characters`. The browser's address bar and tabs are visible at the top. The application's navigation bar includes links for Home, Turn Order, Encounters, Characters, Character Details, Conditions, Items, and Reset to Sample Data. The main content area is titled "Characters" and features a table of existing characters. Below the table is a form to "Add a new Character:" with fields for Name, Initiative Bonus, Character Control, and Hostile Towards, followed by a Submit button.

| Name | Initiative Bonus | Player Character? | Hostile to Players? | | |
|---------------------|------------------|-------------------|---------------------|--------|------------------------|
| Pip | 2 | Player | No | Delete | Update |
| Pop | 3 | Player | No | Delete | Update |
| Pap | 5 | Non-Player | Yes | Delete | Update |

Add a new Character:

Name (required)

Initiative Bonus (required)

Character Control (required):

☐ Player Controlled Character

☐ Non-Player Controlled Character

Hostile Towards (required):

☐ Players

☐ Non-Players

Update Character

READ/UPDATE Characters

This page allows a user to update the attributes of a specific character (character “Pip” shown below). Each field is pre-populated with the current data for that character. The update button updates the data and returns the user to the Characters page.

DND 5e TurnTracker

flip3.engr.oregonstate.edu:3041/characters/1

OSU Microsoft Office Home Google Docs benchurch716/CS340-... 3036 DND 5e TurnTra... 3039 DND 5e TurnTra... 3038 DND 5e TurnTra...

Home Turn Order Encounters Characters Character Details Conditions Items Reset to Sample Data

Update Character

Name (required)

Pip

Initiative Bonus (required)

2

Character Control:

☒ Player Controlled Character

☐ Non-Player Controlled Character

Hostile Towards:

☐ Players

☒ Non-Players

Update

Conditions

CREATE/READ/DELETE Conditions

This page displays all conditions and allows a user to add or delete a condition. Clicking an update link will bring the user to the Update Condition page for that particular condition.

DND 5e TurnTracker

flip3.engr.oregonstate.edu:3041/conditions

OSU Microsoft Office Home Google Docs benchurch716/CS340-... 3036 DND 5e TurnTra... 3039 DND 5e TurnTra... 3038 DND 5e TurnTra...

Home Turn Order Encounters Characters Character Details Conditions Items Reset to Sample Data

Conditions

| Name | Effect | | |
|---------------|--|--------|------------------------|
| Blinded | Attack Rolls against the creature have advantage, and the creature's Attack Rolls have disadvantage. | Delete | Update |
| Incapacitated | An incapacitated creature can't take Actions or Reactions. | Delete | Update |
| Poisoned | A poisoned creature has disadvantage on Attack Rolls and Ability Checks. | Delete | Update |

Add a new Condition:

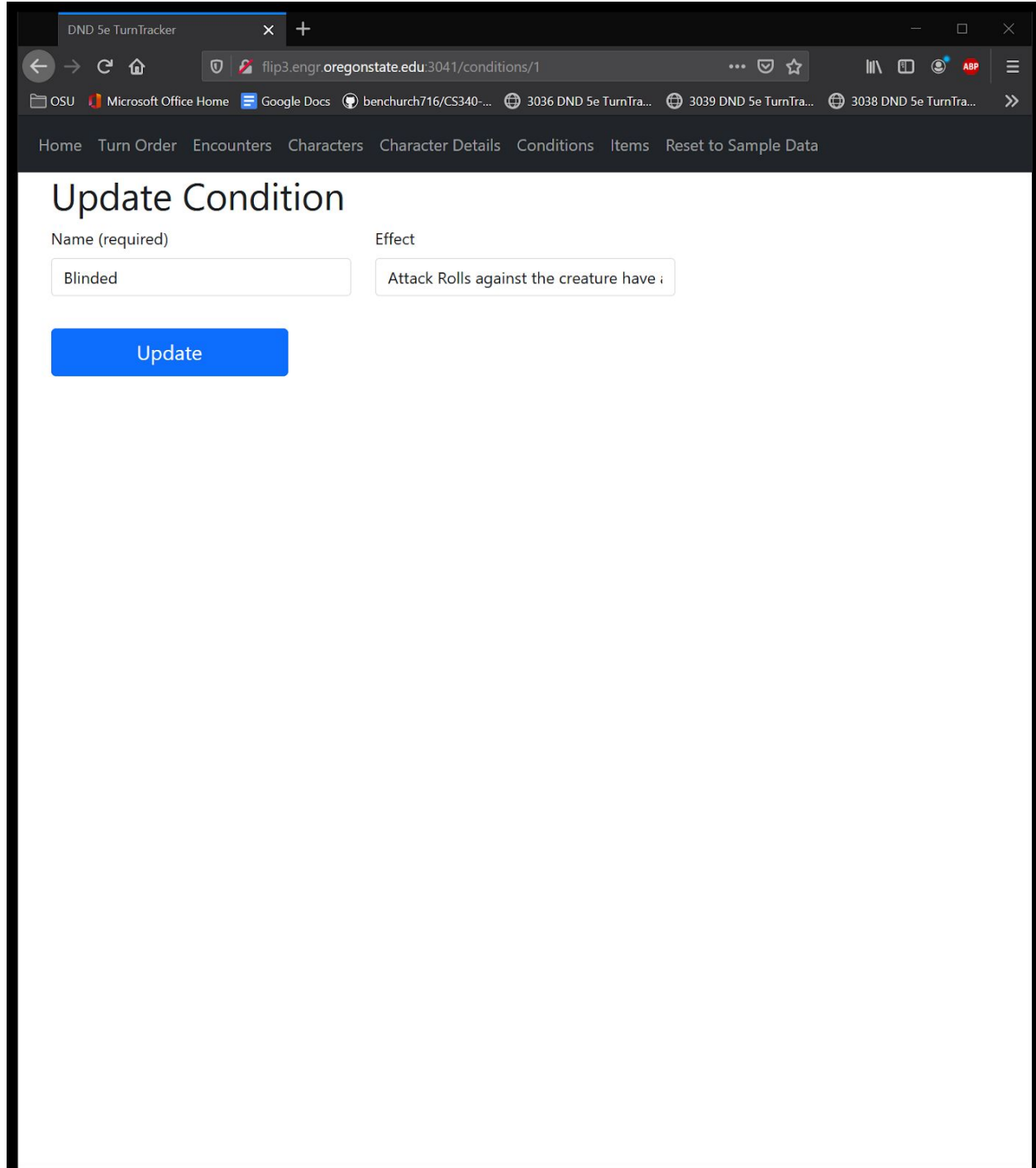
Name (required) Effect

Submit

Update Condition

READ/UPDATE Conditions

This page allows a user to update the attributes of a specific condition (condition “Blinded” shown below). Each field is pre-populated with the current data for that condition. The update button updates the data and returns the user to the Conditions page.



The screenshot shows a web browser window with the address bar displaying `flip3.engr.oregonstate.edu:3041/conditions/1`. The browser's tab is labeled "DND 5e TurnTracker". The page has a dark navigation bar with links: Home, Turn Order, Encounters, Characters, Character Details, Conditions, Items, and Reset to Sample Data. The main content area is titled "Update Condition". It contains two input fields: "Name (required)" with the value "Blinded" and "Effect" with the value "Attack Rolls against the creature have i". Below these fields is a blue "Update" button.

DND 5e TurnTracker

flip3.engr.oregonstate.edu:3041/conditions/1

OSU Microsoft Office Home Google Docs benchurch716/CS340-... 3036 DND 5e TurnTra... 3039 DND 5e TurnTra... 3038 DND 5e TurnTra...

Home Turn Order Encounters Characters Character Details Conditions Items Reset to Sample Data

Update Condition

Name (required) Effect

Blinded Attack Rolls against the creature have i

Update

Items

CREATE/READ/DELETE Items

READ Characters (to show the character name in Held By)

This page displays all items and allows a user to add or delete an item. Clicking an update link will bring the user to the Update Items page for that particular item.

The screenshot shows a web browser window with the URL `flip3.engr.oregonstate.edu 3041/items`. The browser's address bar and tabs are visible. The application's navigation bar includes links: Home, Turn Order, Encounters, Characters, Character Details, Conditions, Items, and Reset to Sample Data. The main content area is titled "Items" and displays a table of items. Each item row includes columns for Name, Held By, Effect, Type, Quantity, and Magic Item, along with "Delete" and "Update" links. Below the table is a section titled "Add a new Item:" with a form containing input fields for Name (required), Effect, Type, and Quantity (required), a checkbox for "Magic Item?", and a blue "Submit" button.

| Name | Held By | Effect | Type | Quantity | Magic Item | | |
|-----------------------|---------|---------------------------|--------|----------|------------|--------|------------------------|
| Sting | Pip | Long Reach | Spear | 1 | Yes | Delete | Update |
| Excalibur | Pop | 1d8 Slashing | Swords | 2 | No | Delete | Update |
| Ring of Spell Storing | Pip | Store a spell in the ring | Ring | 1 | Yes | Delete | Update |

Add a new Item:

Name (required) Effect Type

Quantity (required) ☐ Magic Item?

Update Item

READ/UPDATE Items (the heldBy attribute is updated through the Character Details page)

This page allows a user to update the attributes of a specific item (item “Ring of Spell Storing” shown below). Each field is pre-populated with the current data for that item. The update button updates the data and returns the user to the Items page.

The screenshot shows a web browser window with the address bar displaying 'flip3.engr.oregonstate.edu/3041/items/3'. The browser's tab bar shows 'DND 5e TurnTracker' and several other tabs. The browser's address bar also shows 'OSU', 'Microsoft Office Home', 'Google Docs', and several other tabs. The browser's address bar also shows '3036 DND 5e TurnTra...', '3039 DND 5e TurnTra...', and '3038 DND 5e TurnTra...'. The browser's address bar also shows 'Home', 'Turn Order', 'Encounters', 'Characters', 'Character Details', 'Conditions', 'Items', and 'Reset to Sample Data'. The main content area of the browser shows a form titled 'Update Item'. The form has four main sections: 'Name (required)' with a text input field containing 'Ring of Spell Storing'; 'Effect' with a text input field containing 'Store a spell in the ring'; 'Type' with a text input field containing 'Ring'; and 'Quantity (required)' with a dropdown menu showing '1'. There is also a checkbox labeled 'Magic Item?' which is checked. At the bottom of the form is a blue button labeled 'Update'.

DND 5e TurnTracker

flip3.engr.oregonstate.edu/3041/items/3

OSU Microsoft Office Home Google Docs benchurch716/CS340-... 3036 DND 5e TurnTra... 3039 DND 5e TurnTra... 3038 DND 5e TurnTra...

Home Turn Order Encounters Characters Character Details Conditions Items Reset to Sample Data

Update Item

Name (required)

Ring of Spell Storing

Effect

Store a spell in the ring

Type

Ring

Quantity (required)

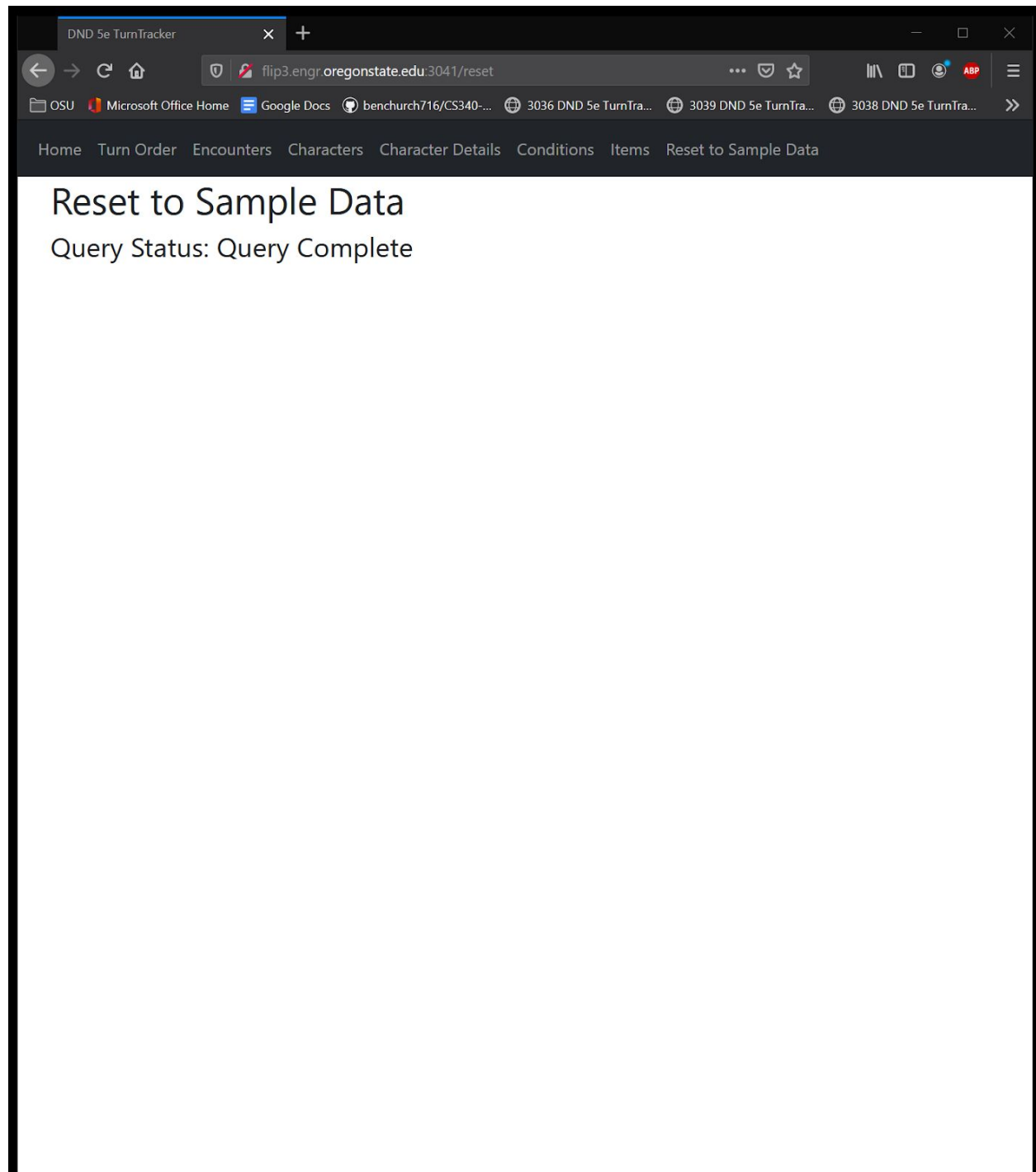
1

☒ Magic Item?

Update

Reset to Sample Data

Navigating to this page deletes all current tables, then rebuilds the tables with sample data.



CS340 TEAM EVALUATION FORM

MARCH 12, 2021

RATE YOUR TEAMS PERFORMANCE USING THE SCALE BELOW

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

| | | |
|--|-------------------------|--|
| Group number | 105 | |
| Name of Group TEAM Members: | Casey Cheek, Ben Church | |
| SCALE AND COMMENTS | RATING | ADDITIONAL COMMENTS |
| How Prepared was your team? Research, reading, and assignment complete | 4 | Both team members understand the content and were able to come to consensus without conflict. |
| How responsive & COMMUNICATIVE were you both as a team? Responded to requests and assignment modifications needed. Initiated and responded appropriately via email, Slack etc. | 4 | We arranged to meet with each other in advance so that we had plenty of time to work on the assignment before the deadlines. |
| Did both group members Participate equally Contributed best academic ability | 4 | Yes, both team members contributed to the assignment equally. |
| Did you both follow the initial team contract? Were both team members both positive and productive? | 4 | Yes |

Are there any suggestions for improvement for your team and what are your goals moving forward?

(Better communication, follow the contract better, modify the initial team contract, more contribution, etc?)

I am excited that my schedule is going to slow down with work in the very near future and I would be happy to get farther ahead of the project deadlines. ~Ben

So far we have worked well together and have created a high quality product without feeling too rushed by the deadlines. I look forward to learning more about databases by working on this project with Ben. ~Casey