Criterion B: Design

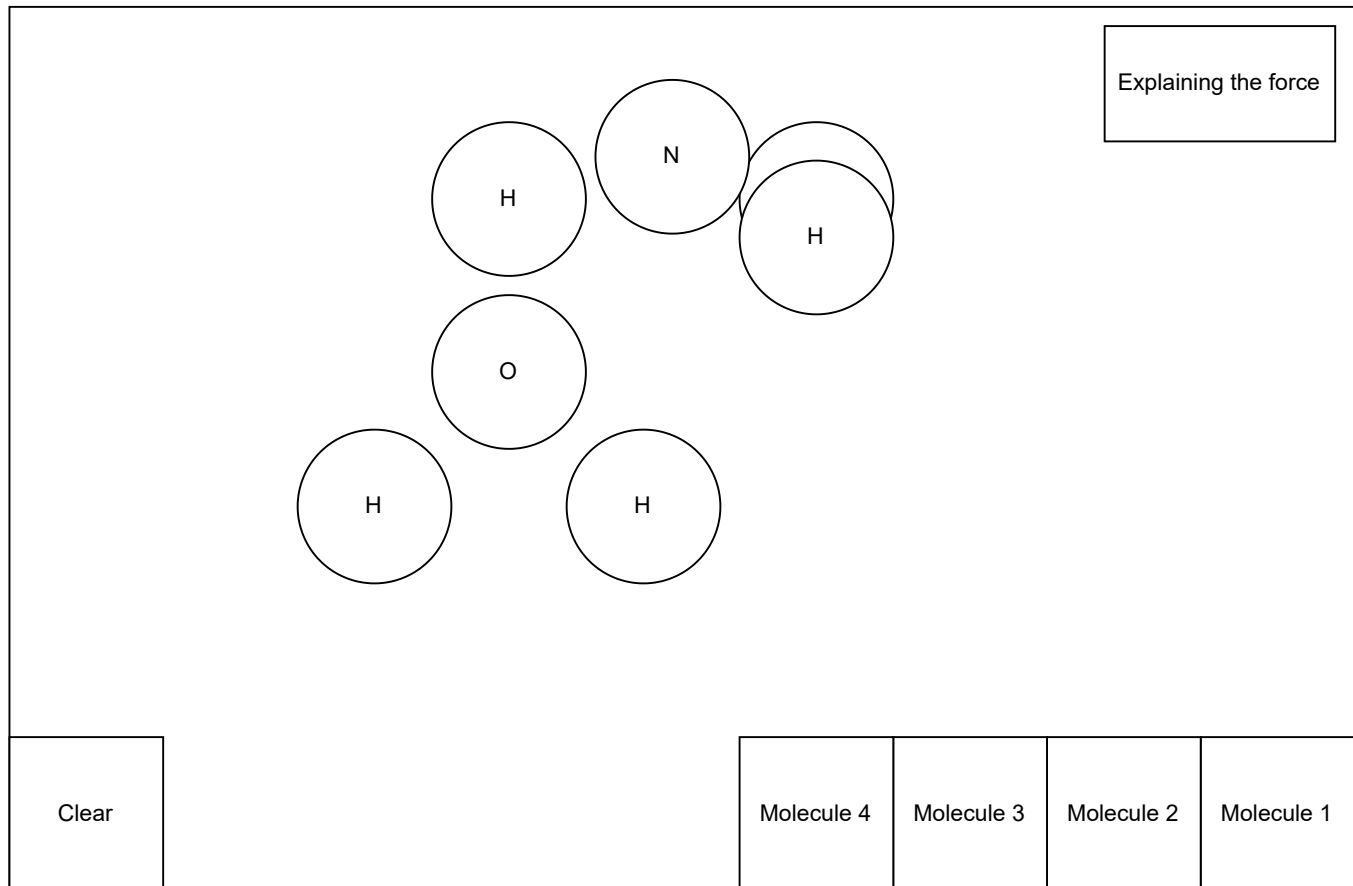Explaining the force

N

H

H

O

H

H

Clear

Molecule 4 | Molecule 3 | Molecule 2 | Molecule 1

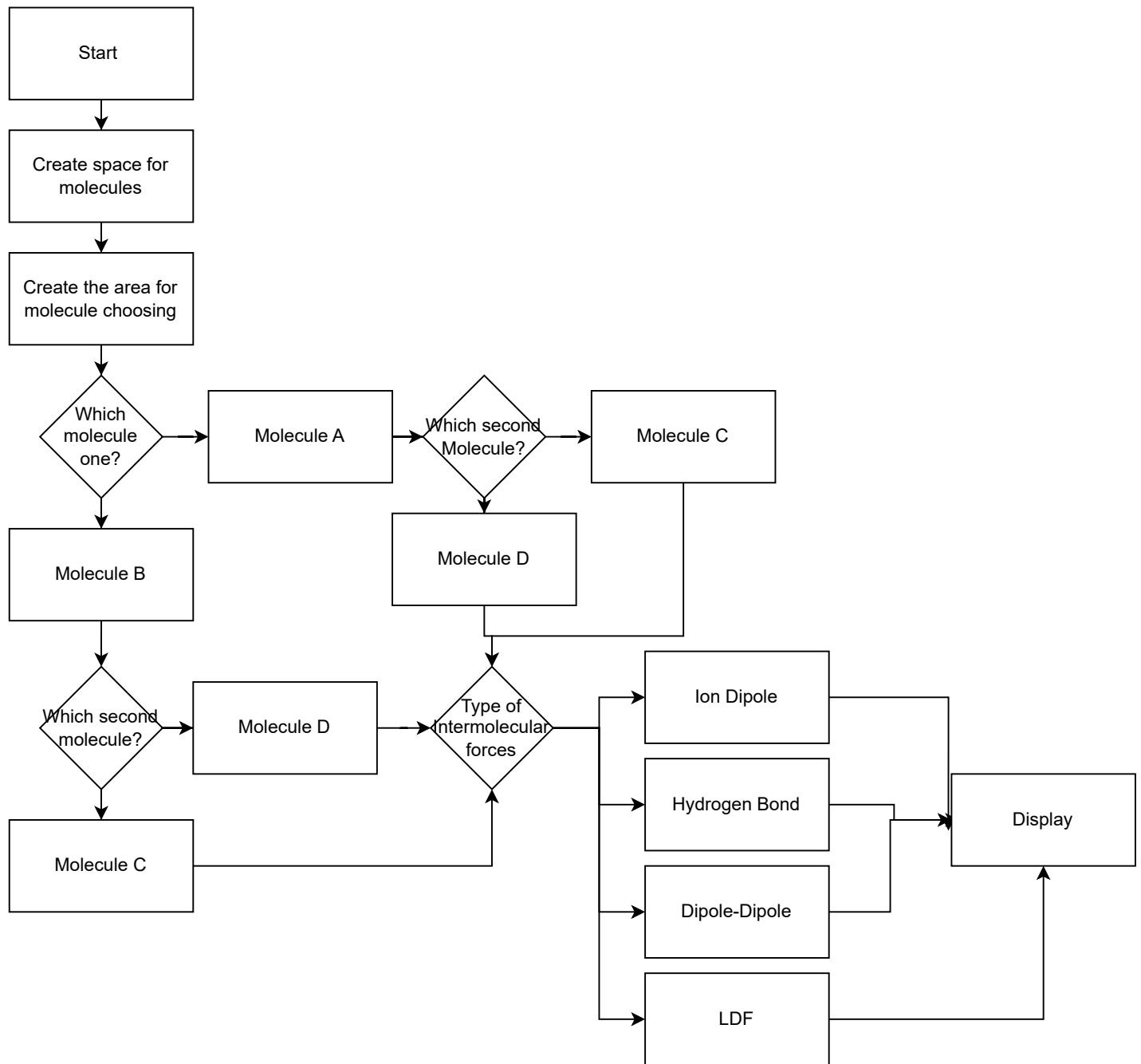After the intro and instructions page, the user is greeted with a blank canvas with 5 buttons that all explain what they do when hovered. Once the user has dragged and dropped 2 molecules, it will animate them and explain the force. The clear button clears the screen. Each molecule hover will explain the molecule with its commonly used name such as H2O being known as water and CH4 being known as methane.

Explaining the force

H

N

H

H

O

H

H

Clear

Molecule 4

Molecule 3

Molecule 2

Molecule 1
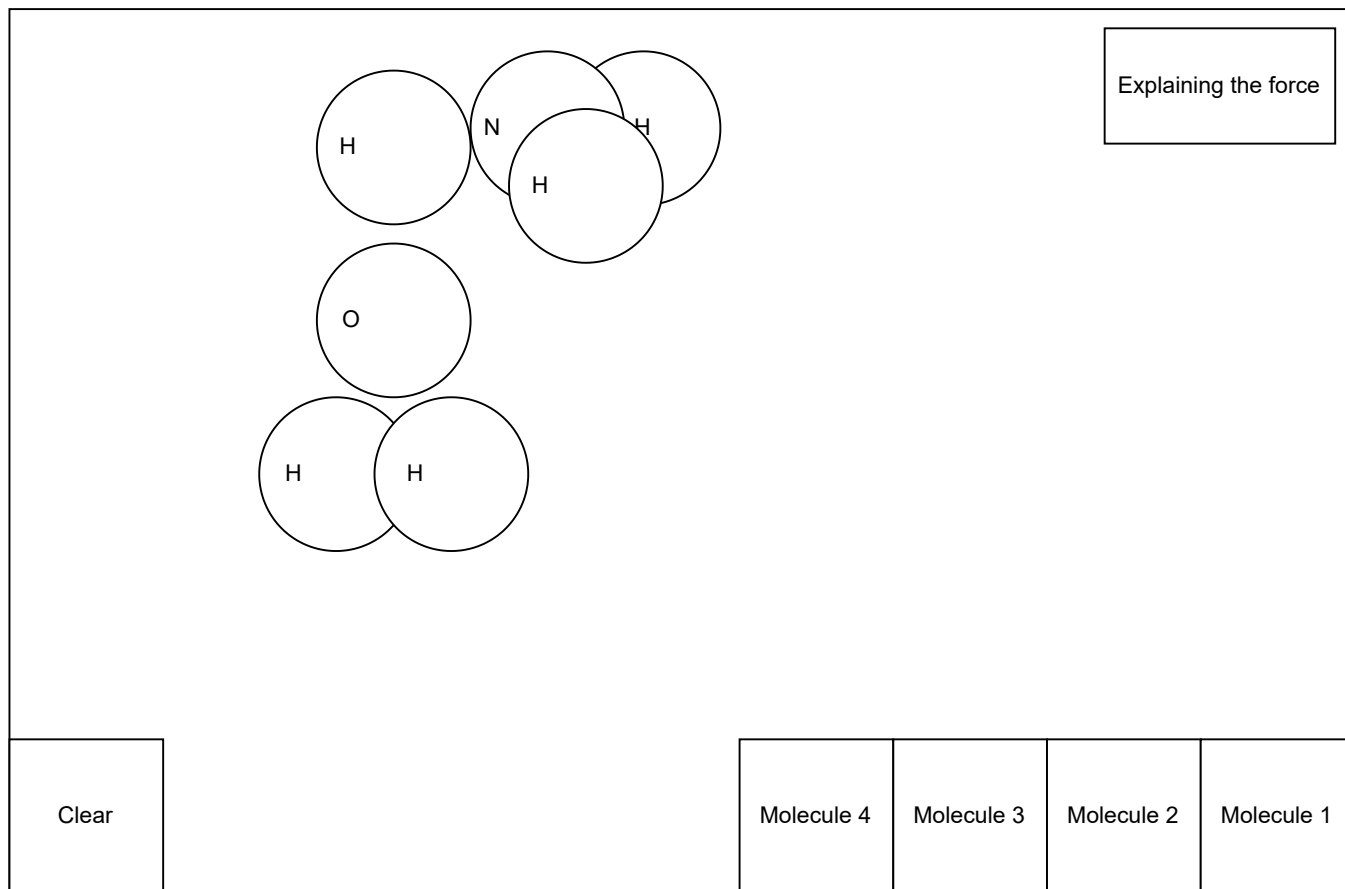
They may also rotate the camera to see how it interacts in a 3-D way. They may zoom in using the scroll wheel with up scroll being in and down scroll being out. Dragging the screen with left click will rotate the camera gyroscopically around a predetermined origin point. Dragging with the middle mouse button will move linearly across the screen. This allows the user to see it in a 3-D way that will still display the same forces.

Flow Chart for logic

```
┌─────────────┐
│    Start    │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Create space for │
│   molecules │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Create the area for │
│ molecule choosing │
└─────────────┘
       │
       ▼
```

Which molecule one? → Molecule A → Which second Molecule? → Molecule C

Which second Molecule? → Molecule D

Which molecule one? → Molecule B

Molecule B → Which second molecule? → Molecule D → Type of intermolecular forces

Which second molecule? → Molecule C

Molecule D → Type of intermolecular forces

Type of intermolecular forces → Ion Dipole → Display

Type of intermolecular forces → Hydrogen Bond → Display

Type of intermolecular forces → Dipole-Dipole → Display

Type of intermolecular forces → LDF → Display

UML
Diagram

Intermolecular forces
Evan Luo

Main

+ draggingIndex: int
+ clicking: boolean
+ dragging: boolean

+ draw: void
+ setup: void
+ mouseClicked: void
+ mouseDragged: void
+ mouseReleased: void

Button

+ x: float
+ y: float
+ w: float
+ h: float
+ colr: color

+ display: void
+ hover(mx, my): boolean
+ mouseClicked: boolean

C3H6O

+ x: float
+y: float
+z: float

+ display: void

H2O

+ x: float
+y: float
+z: float

+ display: void

NH3

+ x: float
+y: float
+z: float

+ display: void

CH4

+ x: float
+y: float
+z: float

+ display: void

Extends

Molecule

+ x: float
+ y: float
+ speedX: float
+ speedY: float
+ roation: float

+ move(startX, startY, targetX, targetY): void

Atom

+ x: float
+y: float
+z: float
+ size: float
+ img: string

+ display: void

Word
Count:
160