

Introduction to Computer Science – Programming: Final Assignment Teams 14

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1. Synopsis



Our project is inspired by the coffee ordering and take-out system at Starbucks in Enschede. The design of exterior is based on Starbucks. The program simulates a coffee order, allowing the user to choose a drink and then complete the take-out process. The animation reflects the flow of creature entering to cafe and ordering the coffee, with interactive elements.

2. Usage and interactions

- **Creature Moving**

User can control the creature's movement using the keyboard arrow keys.

- **Order Coffee**

By clicking the mouse, the user can order coffee, choosing between hot or cold options, and also decide whether to use a cup holder.

- **Depending on the time**

Depending on the time of the day, the background color changes and the "OPEN" or "CLOSED" sign is updated. The creature's ability to enter the café is also restricted based on whether the café is open or closed.

3. Architecture

- **Animal Class:** Manages the creature's drawing, movement, and key interactions. Key methods include `draw()` for choosing between `rabbit()` or `popo()` to display creature and `handleKeyPressed()/handleKeyReleased()` to track arrow key input.
- **Background Class:** Renders an outdoor Starbucks scene with changing time elements. The main `draw()` method shows the window, door, sign, table, road, and logo. `updatedAtColor()` changes background color based on `currentTime`, and `toggleStatus()` updates the open/closed sign.
- **Button Class:** Represents a button with position, size, label, and press status. It changes color on mouseover and press, with `isMouseOverButton()` and `getPressed()/setPressed()` for interaction tracking.

- **InsideScene Class:** Simulates a Starbucks ordering scene where a creature orders drinks. Includes draw() for layout, handleClick() to select items, and hasLeft() to track exits. The scene integrates Animal and Button objects for interactivity.
- **OutsideScene Class:** Displays an outdoor area where the creature can move and interact with Starbucks elements. Uses draw() to show the scene, hasEntered() to check entry conditions, and key events to manage creature movements.
- **Coffee Class:** Models a customizable coffee cup with options for hot/cold and a holder. The draw() renders the chosen style and adjusts the logo size according to the selected style.
- **StatusControl Class:** Manages the current time, updating the background.isOpen status based on the hour. It passes the currentTime to background.updatedColor() to change the background color.
- **Main Tab:** Controls transitions between InsideScene and OutsideScene, using isInside to toggle scenes. Mouse clicks and key events are directed based on the current scene, creating smooth scene transitions and interactive gameplay. An Animal array is created, allowing random animals to spawn each time a new animal appears.

4. Diagram

