CS230 — CRC Cards

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| |  |  |  | | --- | --- | --- | | Class: GameEngine |  | Class: Level | | Responsibilities: | Responsibilities: | | Manage main game loop (update,  render, input handling)  Track and update entities and items Detect collisions and resolve interactions  Manage game state transitions | Load/store level data (tiles, items,  NPCs, player start)  Parse level files  Provide access to tiles and positions  Track completion conditions | | Collaborators: | Collaborators: | | Level, Player, NPC, Item,  GameTimer, UIManager | Tile, Player, NPC, Item,  LevelLoader | | | |  | | --- | | Class: LevelLoader | | Responsibilities: | | Parse level text files into Level  objects  Interpret tiles, entities, and time limits  Validate file format | | Collaborators: | | Level, Tile, Item, NPC | |
| |  | | --- | | Class: GameTimer | | Responsibilities: | | Count down level time limit  Add/subtract time for events Notify GameEngine when time runs out | | Collaborators: | | GameEngine, Player, Item | | |  | | --- | | Class: Player | | Responsibilities: | | Store position, direction, and score  Move according to tile colour rules  Collect items and levers  Avoid bombs and enemies | | Collaborators: | | Tile, Level, Item, GameEngine,  NPC | | |  | | --- | | Class: NPC | | Responsibilities: | | Represent non-player characters Define shared properties and  interfaces  Provide move/update logic | | Collaborators: | | Level, Tile, Player | |
| |  | | --- | | Class: FlyingAssassin | | Responsibilities: | | Move straight until edge, then  reverse  Eliminate player or NPCs on contact | | Collaborators: | | NPC, Level, Player | | |  | | --- | | Class: FloorFollowingThief | | Responsibilities: | | Follow assigned colour using  left-hand rule  Steal loot, levers, and clocks | | Collaborators: | | NPC, Tile, Level | | |  | | --- | | Class: SmartThief | | Responsibilities: | | Path find to nearest loot/lever/exit  Steal items and avoid player | | Collaborators: | | NPC, Tile, Level, Pathfinder | |

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| |  | | --- | | Class: Pathfinder | | Responsibilities: | | Compute valid shortest paths per rules  Support SmartThief movement | | Collaborators: | | Level, Tile, SmartThief | | |  |  |  | | --- | --- | --- | | Class: Item |  | Class: LootItem | | Responsibilities: | Responsibilities: | | Define base behaviour for all items  Handle collection or interaction | Add score value and disappear on pickup | | Collaborators: | Collaborators: | | Player, NPC, Level | Player, Level | | |
| |  |  |  | | --- | --- | --- | | Class: ClockItem |  | Class: LeverItem | | Responsibilities: | Responsibilities: | | Add/subtract time on pickup | Open all gates of same colour | | Collaborators: | Collaborators: | | Player, GameTimer | GateItem, Player, NPC, Level | | | |  | | --- | | Class: GateItem | | Responsibilities: | | Block movement until lever collected | | Collaborators: | | LeverItem, Level | |
| |  | | --- | | Class: BombItem | | Responsibilities: | | Trigger countdown when near player/NPC  Explode and chain react | | Collaborators: | | Player, NPC, Level, Item | | |  | | --- | | Class: DoorItem | | Responsibilities: | | Represent exit, trigger win when all items collected | | Collaborators: | | Player, Level, GameEngine | | |  | | --- | | Class: Tile | | Responsibilities: | | Store tile colours and connections Contain items and support  movement logic | | Collaborators: | | Level, Player, NPC, Item | |
| |  | | --- | | Class: PlayerProfile | | Responsibilities: | | Store player name and unlocked levels  Track player statistics | | Collaborators: | | ProfileManager, HighScoreTable | | |  |  |  | | --- | --- | --- | | Class: HighScoreTable |  | Class: SaveGameManager | | Responsibilities: | Responsibilities: | | Store top 10 scores per level  Add/display scores and persist data | Save/load in-progress game state Serialize/deserialize relevant data | | Collaborators: | Collaborators: | | PlayerProfile, GameEngine | GameEngine, Player, Level | | |

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| Class: ProfileManager |
| Responsibilities: |
| Create/delete/load profiles  Persist data between runs |
| Collaborators: |
| PlayerProfile, HighScoreTable |