

## **Digital Systems – NAND2Tetris January 2025**

PDF Document for Project 9 Submission: King of Falafel

### 1. Concept / Idea of the game:

King of Falafel is a fast-paced restaurant management game where players must serve customers their desired food orders under time pressure. The game challenges players to match orders for hamburgers, falafel, and shawarma while managing a countdown timer. The game features increasing difficulty levels, dynamic scoring, and celebratory animations, creating an engaging arcade-style experience that tests players' quick decision-making and reflexes.

### 2. Architecture:

- Main.jack:

Purpose: Serves as the entry point for the game.

Responsibilities: Creates and initializes the main Game instance and launches the game loop.

- Game.jack:

Purpose: Core game controller managing all game states and logic and contains the primary game loop (while loop, with an exit flag).

Responsibilities: Manages difficulty selection and level progression. Handles scoring and timing mechanics. Controls game flow and victory/loss conditions. Implements special effects (fireworks, warning system). Executes the main game loop that processes inputs, updates game state, and renders visuals at each frame

Notable Features: Dynamic difficulty scaling. Visual feedback systems. Memory-efficient animation handling. Efficient game loop implementation with state management.

- Player.jack:

Purpose: Controls the player character and movement.

Responsibilities: Handles player position across three food stations. Manages sprite rendering and clearing. Controls player input response.

Notable Features: Optimized sprite drawing using the bitmap editor. Smooth animation transitions. Position validation.

- Customer.jack:  
Purpose: Manages customer interactions and orders.  
Responsibilities: Generates and displays food orders. Renders customer character and speech bubbles. Handles order timing  
Notable Features: Dynamic text generation. Character animation.
- Table.jack:  
Purpose: Renders the food station – the seller’s counter.  
Responsibilities: Draws serving counter and station labels (food types).  
Notable Features: Clean visual layout. Optimized drawing routines.
- Random.jack:  
Used to implement the randomness of the client’s orders. Based on mathematical principles.  
Taken from the internet – credits in the code.

3. Motivation: We chose to create King of Falafel because it was one of our favorite computer games growing up. Back in elementary school, we would spend hours taking turns playing this classic restaurant management game, competing to see who could serve the most customers without making mistakes. Through this project, we wanted to recreate that nostalgic gaming experience while applying the programming concepts we’ve learned in the Nand2Tetris course. The development process allowed us to honor the original game that brought us so many fun memories. Furthermore, we believe that reimagining childhood games through programming helps bridge our past experiences with our current technical skills, making it a particularly meaningful for us.
4. Google Drive Link to our video:  
<https://drive.google.com/file/d/1Fp3UBLBr8Q10h5IVpuU6uzjfg4OcokzG/view?usp=sharing>
5. Names: Ran Mahalal, Shahar Rosenfeld  
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