Online Pong

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The presentation along with the project report must be submitted along with the report (Moodle link)

Roles in the Project

3 Network
Concepts!
↓

Student Name	Implementation	Design	Requirements	Testing
Matias Barandiaran	Data Interpolation and serialization, Client Server Architecture	Deployment Diagram	Congestion Control	Stress Testing
Iason Iacovides	Pygame Rendering, Game Logic	Use Case Diagram	Forward Error Correction (FEC)	Unit Testing
Jiashuo Hu	Game Architecture, Client Address Mapping	Deployment Diagram	UDP Communication	Unit Testing

Network System Architecture
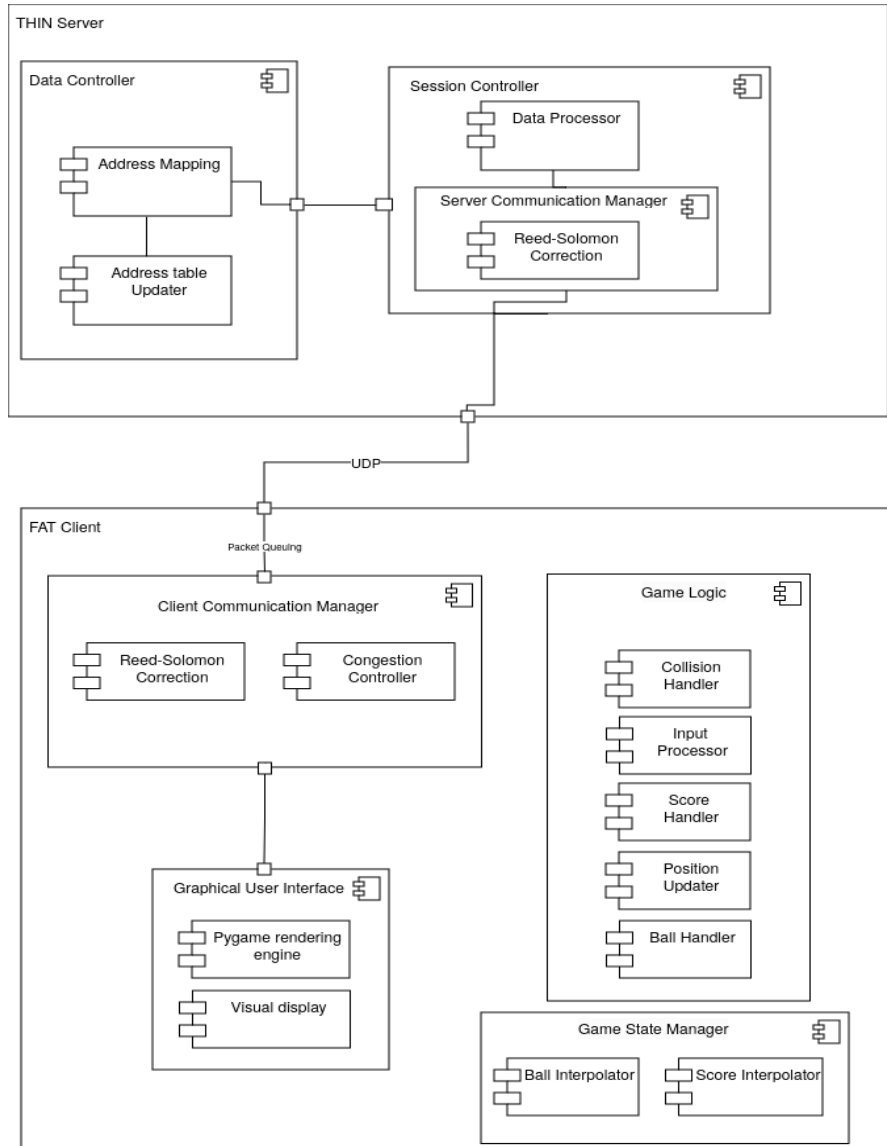
- Change in proposed model from first proposal

- FAT Server ->FAT Client

System Demonstration
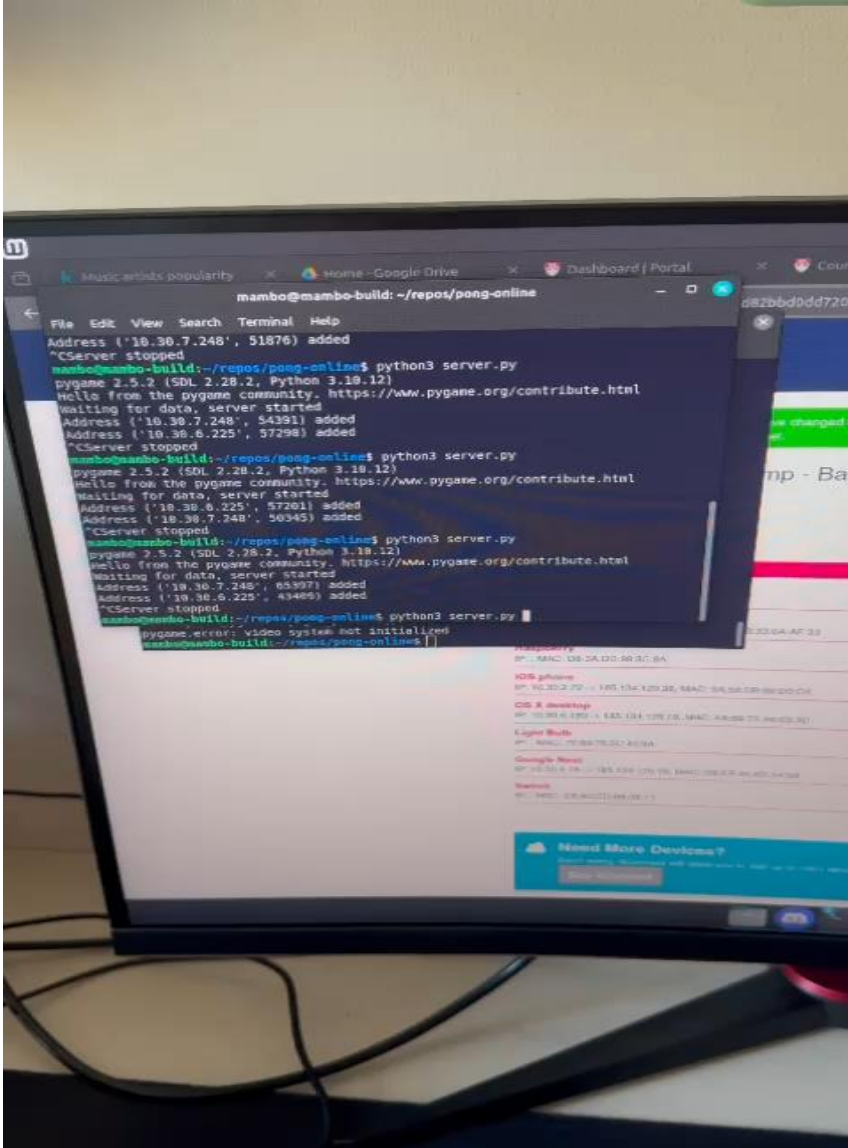
- Live local host demonstration

- Video showcasing network application capabilities

System Testcases

Test Case #	Test Title	Test Summary	Test Data	Breakout Point	Safe Point	Status (Pass/Fail)	Notes (if any)
1	Noise Level	Measuring Reed Solomon correction after varying number of flipped bits.	"noisy text" converted into byte array.	6 bits	5 bits	Pass	None
2	Response Time	Measuring server response time after varying packet transmission delay (PTD).	Response time kept constant at around 5e-4 s.	None	1e-4 s	Pass	No breakout point due to congestion control procedures.
3	CPU Usage	Recording CPU usage (%) after varying PTD.	Spikes of 100% utilization detected at breakout point.	1e-6	1e-5	Pass	None
4	Memory Usage	Recording memory usage (%) after varying PTD.	Utilization kept constant at around 40%	None	All	Pass	Server never collection large amounts of memory.
5	Throughput	Recording program's throughput after varying PTD.	Expected at least 0.3 Mb/s	<1e-23	1e-23	Pass	None

Table 4: Stress Test Cases

Recommendation: 1 minute max

System Testcases

Test Case #	Test Title	Test Summary	Test Steps	Test Data	Expected Result	Status (Pass/Fail)	Notes (if any)
1	test_reed_solo	Testing if Reed Solomon (RS) encoding and decoding works as indented.	Serialize the input data. RS encode the input data and use the result to receive the RS decoded data.	b'Test Data'	"Test Data"	Pass	None
2	test_interpolation	This test checks whether the interpolation of ball position and direction works correctly.	Create a dummy network instance, initialize a ball object, call the interpolate function with ball and network instances.	Ball object with x=100, y=100, direction=[1, -1] and mock received data as a Ball with x=200, y=150, direction=[0, 1]	The ball's x position should be updated to 150. The ball's y position should be updated to 125. The direction should be set to [0, 1]	pass	None
3	test_reset_position	Ensure positions are properly reset.	Intialize ball, change position attributes, check if ball's current x and y coordinates match the initial coordinates.	ball.initx=100, ball.inity=100, newx=50, newy=50	currx=100, curry=100	Pass	None

Table 2: Unit Test Cases