Sha’Necia Holden

ITAI 4373 Fall

Professor **Patricia Mcmanus**

L02 Exploring AnyLogic Through Simulation: A Reflective Journal Reflective Journal:



**Introduction:**

Learning Objectives: Identify what you hoped to learn or achieve by completing this tutorial.

Today I’ll be discussing one of my experiences while utilizing the application known as Anylogic, if you aren’t aware AnyLogic is a multimethod simulation modeling tool developed by The AnyLogic Company (formerly XJ Technologies).

From what it seems It supports agent-based, discrete events, and system dynamics simulation methodologies. The simulation is marketed as cross-platform simulation software that works on Windows, macOS and Linux. AnyLogic is used to simulate markets and competition, healthcare, manufacturing, supply chains and logistics, retail, business processes, social and ecosystem dynamics, defense, project and asset management,[19] pedestrian dynamics and road traffic, IT, and aerospace.

With this assignment we were able to explore another simulation tool where we can conduct different simulations that are used throughout the world. What I’m hoping to do with this assignment is to learn the basics and foundation of this tool, and to develop more experiences with simulations. While I am familiar with simulations, simulators especially involving gaming, I’m glad we are given an opportunity to explore this tool that will be used outside of gaming. The definition of a simulation is imitating the operations which take place within a system to study its behavior. Analyzing and creating the model of a system to predict its performance is called simulation modeling.

Simulation mimics a real-life process to determine or predict the response of the entire system. This helps to understand the dependency of each part of the system, their relations, and interactions. The process of simulating in real life can be costly. Therefore, we build a model to solve costly and complex ideas efficiently. Building a simulation model in an institution or organization increases profit.

For the simulation, we must create the process flowchart that the simulation would follow

I’ll be creating the bank office queuing system, first things first is create a new model.

A screenshot of a computer program

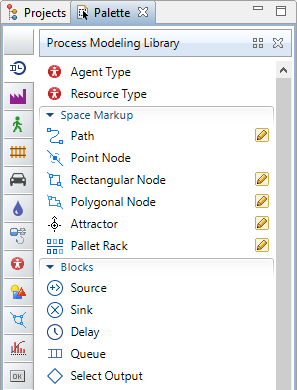
Description automatically generated

Create a new model

Since I am doing the bank simulation, we must name the model as so.

Click the New toolbar button. The New Model dialog box is displayed.

Specify the name of the model. Type Bank in the Model name edit box.



Many options to assign the layout of the model, here we are looking at the work flow and the things that it has to offer, I selected this based on the

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

**Challenges:**

Hm, challenges, let’s see I did not run into any trouble besides getting footage of the simulation working. I followed a tutorial, and it was quite fun to watch the simulation run. I believe that Anylogic didn’t allow me to record footage because I have the personal-use version of Anylogic. Thankfully the tutorial was quite informative and left no area to fail with executing this simulation.

A cloud with text and a green bar

Description automatically generated with medium confidence

**Insights:** Share any new concepts, techniques, or insights you gained.

Some new concepts I’ve learned is about the anylogic simulation . I can see why this software is so heavily admired by everyone, a fan favorite.

A screenshot of a computer

Description automatically generated

**Key Takeaways:**

Multi-Method Simulation Capability

AnyLogic uniquely combines discrete-event simulation (DES), agent-based modeling (ABM), and system dynamics (SD) into a single platform, allowing for flexible modeling of complex systems.

Versatility Across Industries

The software is applicable to a wide range of fields, including healthcare, manufacturing, logistics, transportation, and urban planning, making it a valuable tool for solving diverse real-world problems.

Data Integration for Realism

AnyLogic allows users to incorporate real-world data into their models, ensuring that simulations are accurate, dynamic, and predictive.

User-Friendly Interface with Advanced Customization

The drag-and-drop interface caters to beginners, while Java scripting offers advanced users the ability to customize models and create detailed logic.

Visualization and Reporting

With 2D and 3D visualizations, AnyLogic provides clear and engaging outputs that make it easier to interpret results and share findings with stakeholders.

Decision-Support System

By enabling scenario analysis and "what-if" experiments, AnyLogic helps users explore various strategies and predict outcomes, improving decision-making.

Scalability and Integration

Models can be scaled to different levels of complexity and integrated with APIs, databases, or cloud services for enhanced functionality.

Steep Learning Curve for Advanced Features

While beginner-friendly, advanced features such as Java scripting and large-scale simulations require significant effort and expertise to master.

**Final Model:** Discuss the final model you created, including its functionality and what it represents.

A screenshot of a computer

Description automatically generated

The simulation runs properly, I wish OBS studio didn’t give me such a hard time when recording.

**Applications:** Consider how the skills and knowledge gained from this tutorial could be applied to real-world scenarios or other projects.

The knowledge gained here could be utilized in showcasing projects and models to companies without having to put the things into practice, saving the time , resources and funds while demonstrating the future with the application.

**Conclusion:** Summarize your overall experience and reflect on how this exercise has contributed to your understanding of simulation modeling

We see that AnyLogic is a versatile and powerful simulation tool that combines discrete-event simulation, agent-based modeling, and system dynamics into a single platform. Its flexibility allows users to model and analyze complex systems across various industries, such as healthcare, logistics, and urban planning. By integrating real-world data, AnyLogic enables users to make informed decisions through scenario testing, predictive analytics, and robust visualization tools.

While it requires a learning curve for advanced features like Java scripting (Which I haven’t mastered just yet) , its broad capabilities and user-friendly interface make it an invaluable tool for both beginners and experts. I feel like this will be a useful tool in the future and I have a lot of fun exploring this as an assignment.