Thank you for taking part in the testing process. DISCLAIMER: Please be aware while you answer these questions:

The program is in Beta Testing. Bugs are present and are known. Please try to ignore obvious bugs as much as you can. There are a few graphical bugs/glitches which would be solved with the addition of animation, for example.

The focus on this project is the artificial intelligence (AI) systems. The program’s UI, art work, and other general program systems such as lack of animations are immensely underdeveloped. Please answer these questions with thought only on the AI and not on the artwork, or lack of other engaging systems which would otherwise be in place in a fully developed program.

1. General Concept Feedback

1.1) Imagining a fully developed, intelligent program which allows users to create very complex and fully customizable maps and scenarios, do you think that with enough development this program can be used as a good tool to train shop employees to allows them to experience unique scenarios and optimize their customer service skills? Please explain reasons for your response.

The program contains the basic starting points for good development. All the aspects of good AI are in place, but simplified, which this means that with more development then all these AI features can be smart of complex. Yes, I agree that this can make a great baseline for future development.

1.2) If you and think that both the concept is good, and this program can be used a good baseline, and you did not cover it above, please describe why.

1.3) If you think that the concept is good, but this program is not a good baseline for further development, and you didn’t cover it above, please describe why.

1.4) If you think that the main concept of this program is bad, and that this idea couldn’t be developed well, and you didn’t cover it above, please describe why.

1. General Artificial Intelligence (AI) Feedback

2.1) Please describe your thoughts on the general AI used in the program? Please think about the decisions they made, and compare their decision to ones you would typically see in real-life.

The characters’ general decision making seems realistic however, it is still obvious that they are not fully intelligent and do have some robotic tendencies such as the customers going from one shelf to the other across the entire store, instead of looking at that section and realizing they don’t need to be there, for example the fruit and veg section.

2.2) Did the AI seem simple, and not very smart? If so, please describe how you came to that conclusion, and maybe some suggestions for making the AI seem more realistic. If you think the AI was smart, and it did seem to make some good decisions, can you pin point why it seemed smart, and if there is anything that can improve it even more?

The AI seemed simple. Like I said before, the AI was making good choices, but its general feel was robotic and not intelligent. The characters having some kind of awareness of their surroundings like with line-of-sight would make them seem more intelligent if those abilities were used in a good way.

2.3) If a trolley was in a character’s way, they were programmed to find the nearest free tile from the trolley that wasn’t in their way and then move the trolley there. Did you notice this behaviour? If you did, did you think it looked realistic?

This happened a few times. I did notice it and for the most part looked realistic. Sometimes it was odd behaviour since the employee needed the trolley but a customer would move it far away from the employee.

1. Employee AI Feedback

3.1) Do you think that the employees made good, and realistic decisions? Please describe how you came to your conclusion.

The employees were quite realistic. They moved to and from the warehouse in a realistic way, and waited for customers to move before carrying on their path.

3.2) The employees were programmed to get out of the way of a customer if they were asked to move. Did you notice this? If you did, did you think it looked realistic?

I did notice this and it did look realistic, the employee would stand there and wait till the tile was free, but they could have instead tried to put out another item of stock somewhere else, or faced up a different shelf while they waited.

3.3) Could you describe any ways that the employee could be made more intelligent?

The employees could chat to the customers to make them seem friendly. They could also face-up in a more realistic way, for example, facing up the most bought sections first, such as fruit and veg. If an employee was new and wasn’t familiar with the store then they should not know where everything is, causing them to need to look around and find where something is or ask a more experienced employee.

1. Customer AI Feedback

4.1) The customers were programmed to pick up the items they needed and then head to the checkout. If another character was in their way, they would wait 5 seconds, and then try and find a way around the character, if both of those failed, they would ask the character to move. Did you notice this behaviour? If you did, did you feel that it looked realistic?

I did notice this. But sometimes it seemed like odd behaviour as the customer would go all the way around the aisle which is unrealistic.

4.2) Could you describe any ways that the customers could be made more intelligent?

A big way to make them more intelligent is to perhaps get them to forgot things, which would mean that later they may need to go back on themselves to find items, or maybe they look in a shelf but couldn’t see what they need even though it was there. This would cause the customers to move around a lot looking for items that they simply missed which is realistic. Also, if the customers could ask employees for stock not on the shop front, or to be able to decide not to buy an item due to its high price or low quality.

1. Relationship AI Feedback

Subtle relationship behaviour was programmed into the characters. If they found themselves next to another character they had a good enough relationship with they would say help to them, then they would choose to have a conversation with that character. Depending upon what they talk about, and the traits of the characters that are talking, the characters’ relationship with each other would either increase or decrease.

5.1) Did you notice any conversations taking place? If you did, did they look realistic? Is there anything that would make it look more realistic?

Very few conversations were taking place. Except at the checkout. The ones that did take place were kind of realistic except that it was hard to tell that they were talking. The characters would stop moving and block the aisles until they were asked to move which is realistic.

5.2) Can you think of anyways to make it more clear when characters are conversing? Such as speech bubbles above their heads, or happy and sad faces appearing when they gain or lose relationship.

Speech bubbles like the Sims game would be useful, or pluses and minuses when relationships go up and down would also be useful. The lack of UI sophistication caused it to be difficult to see when interactions were taking place, so this might be a simple fix.

1. Traits AI Feedback

6.1) All the characters have their own personal traits such as friendly, and lazy. These traits were used to affect how characters interacted with each other, as well as certain attributes associated with the characters such as their maximum speed etc. Did you notice these traits? If you did, did you feel like they were used in a realistic way? Is there anything that could be further developed with the traits to make the character more realistic and interact with each other in a more realistic way?

The traits were not used much at all. Only when relationships increased or decreased, which was rare. Traits should have a much bigger impact so the user can feel like they understand the characters and can like or dislike them based upon their traits. The idea behind the traits was good, but they were just not integrated into the AI well enough.

1. Pathfinding Feedback

The pathfinding is the first step in any advanced AI system. The system in this program uses the A\* pathfinding algorithm which is the fastest and more optimal algorithm currently developed.

7.1) Do you think that the characters took realistic paths to their destinations? Sometimes if the AI takes the most optimal path, it may look unrealistic so keep that in mind. Please explain your answer with examples of why or why not you agree.

For the most part due to the simplicity of the store, the pathfinding looked realistic. The characters never went back on themselves which seemed a bit robotic and unrealistic.

1. Additions added to AI in possible further development

There were a few systems that could have been added into this program given more time to fully develop them. After describing them, please give your feedback on whether these systems would advance the AI and make the character more realistic.

8.1) Line-Of-Sight was the first thing to be implemented given more time. Currently all the characters have a full awareness of the entire world, they can find any item on any shelf, and find any character in the world even if they are very far away. With line-of-sight, systems could be developed and added which allows characters to need to walk tile by tile and search for their needs. They would also be able to ‘see’ other character that are not next to them and engage with them in a more realistic way. Do you agree that line-of-sight would advance the realism and intelligence of the AI considerable? If you do not agree, please explain why, and perhaps suggest your own ways the AI could become more realistic in terms of knowing things about their environment.

Line-Of-Sight would make a great addition. It would unlock the possibility for a more realistic looking AI, with characters replying on their sight rather than their robotic knowledge of the world. More additions could include sound, for example, a character could not see the checkout but may be able to hear the beeps and then know which way to go to get to them.

8.2) Linked closely with line-of-sight; partially explored pathfinding algorithms could be developed. The idea behind this is that currently, a character can make a perfect path from any tile to any other tile, even if it is 100s of tile away. This is because they can ‘see’ the entire map. Partially explored pathfinding would mean that characters would have a blank view of the map and only know about other characters and furniture if they see them using their line-of-sight. This would create a realistic looking pathfinding system which could take characters down dead-ends and non-optimal paths, which is impossible with full map awareness. Do you agree that partially explored pathfinding algorithms would create a more realistic looking pathfinding AI? If not, why do you disagree, and can you think of any ways to create a more realistic pathfinding system?

Line-Of-Sight would make a great addition. It would unlock the possibility for a more realistic looking AI, with characters replying on their sight rather than their robotic knowledge of the world. More additions could include sound, for example, a character could not see the checkout but may be able to hear the beeps and then know which way to go to get to them.

8.3) Please think about other ideas and concepts that could be added into the program to create a more realistic AI. Maybe talk about it at a general level and if you can, go into details about possible ways to implement the ideas. The box is a lot larger than the other. Please do not feel like you must fill the entire box. Any amount of feedback here is fine.

Adding more fuzzy logic to the AI would cause the characters to seem more unpredictable which is realistic. Employees don’t always work perfectly and so if employees sometimes slacked off and didn’t do their job properly, or would not face-up 100%, this would also increase the realism of the program.