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 allow them to experience unique scenarios and optimize their customer service skills? Please explain reasons for your response.

Yes, it shows all aspects of the shop, it would be more useful for scenarios like accidents or queues and how to deal with them. However, I don’t think that it would really help customer service skills too much because it’s not focused on the interactions between the employees and the customers. Maybe there could be a pause in the game to show when they interact at the checkout and then employees could be taught how to deal with difficult customers.

1.2) If you think that both the concept is good, and this program can be used as 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 AI is generally similar to real life except the fact that customers almost always go across the shop in a random pattern, so they go back and forth instead of going from start to finish. Not that it’s that important, but customers also forget things when they are at the checkout so maybe there could be a path where they go to the checkout, change their mind and go back across the store to get something else.

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 fact that different customers stopped at different shelves and not all the same is realistic just the pattern in which they do it isn’t, they come in, go through the shop from left to right but normally people have a list or know where the things they want in the shop are so will jump from place to place. Customers might also go back to the same place a couple of times if they are indecisive. These are all small things though.

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?

It did look realistic and how a customer would normally react to it, another way it could be moved is if the customer interacts with the employee to move it or the employee sees the customer and moves it automatically but it looks fine.

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.

Yes, they acted like normal employees and the job changes were good, the employee moving around on the shop floor seemed natural and the one at the checkout put the items through properly and interacted with the customers.

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?

Yes it looked natural because the employee just moved to the next free tile and the customer passed by.

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

The employee could check the shelves before loading a trolley full of products so it could check the stock on the shelves and when one is below a certain amount they could go straight to the back to get the item and restock the shelf, which would make it more realistic.

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?

It was realistic, obviously there’s some bugs so sometimes they end up on the same tile but customers look at the same shelves at the same time in real life anyway.

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

Just as I said above, it’s probably not more intelligent because some customers aren’t and are all over the shop but moving round the store in a random fashion might be more realistic.

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?

There were conversations but they were short and a lot of the time customers next to each other wouldn’t speak, but normally customers don’t talk to long unless they know each other really well so in this case if their relationship level is high. Maybe they could move through the shop together if they were talking or move away from the shelves together as well.

5.2) Can you think of any ways 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.

You could have a status bar for the conversation at the top of the screen and have it go different colours such as green when its going up and maybe show the gain or loss in relationships points like “-10” or “+5”. You could have sound for the voices but isn’t really necessary.

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 are good and interesting although you could have maybe different moods that they could be in instead so some could be happy so talk to more people and some could be in a bad mood just like the annoying trait you have so could be seen as a more difficult customer. If the traits remain maybe only have ones directly linked to the situation, things like clever and jealous might not be shown in the simulation at all whereas ones like difficult or cheerful or kind can be shown in how they react with other customers and employees.

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.

The way they moved to their destinations seemed natural, they wouldn’t always take the quickest way so that’s more realistic. When they start off on the left they’ll look at the shelves and go up, right and down to their next destination which is most often the longest route instead of going down, right and up.

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 characters 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.

Definitely, it would mean that they would be more all over the shop and take longer looking for things which is more realistic. Also if they couldn’t find something in their line-of-sight they could always ask the employee to find it for 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?

Yes, it would mean that they would discover the shop aisle by aisle like a normal customer would if they were walking into a shop for the first time. You could even alternate between customers so there could be customers with sight of the whole map (loyal customers who shop there very often) and new customers that have no previous knowledge of the store layout before-hand.

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 others. Please do not feel like you must fill the entire box. Any amount of feedback here is fine.

For more tricky situations there could be customers that steal, put things back in the wrong place, return items, break items, spill items. For things such as spilt items it would help the employee put their health and safety training into practice as they’d have to clean it up, have a sign and warn customers about it as well as managing their time to get everything done.

There could be random fire alarms so the trainers using the simulation can see what the trainee would do in that situation, how they would get customers out of the store, how they would react and where to go.

A lot of the time customers ask for help to find items in the store so maybe (if there isn’t already, it didn’t happen while I was watching but could still be in there) show the employee showing the customer where it is.

A more advanced feature could be a disabled customer because they would have different needs and may need more help or take more time etc.

Overall, I think it’s a pretty good start it’s got all the basic elements, I like that the stock is shown, the relationship levels, the way the items are put through the checkout as well is good.