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.

* 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.

- As a retail employee, I think that this would be a good program if it was fully developed to help train newer staff. If you could customize the maps to replicate your own store and the managers could create different scenarios to play out then I think you could help use it to show how to react in certain situations that new staff haven’t experienced yet. It would be helpful to show how the store is laid out and what jobs are happening elsewhere in the store whilst others are also working.   
Although to counter that, I also believe that some tasks you can't learn without doing them physically yourself. Some scenarios cannot be prepared for simply by viewing them on a screen, and it takes personal time, effort and experience to learn/prepare yourself for.

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.

* 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.

- Overall I thought the AI was simple but effective! It appeared realistic and both the workers and customers seemed to react normally. Customers were shopping for what they wanted and the workers would work around them, showing courtesy to the customer as you would in real life. You wouldn't push a customer out of the way to get your work done so I was happy to see that didnt happen here!

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 but I think it works well, even if there were a few minor hiccups. The only problem I experienced was when the store became busy, one of the workers became surrounded by customers in the bottom left corner shelf trying to get to the register. The worker couldnt move the customers out of their tiles and since the customers had the items they wanted but couldnt get to the register they just kept piling up! Although kind of funny to watch I'd like to think in real life there would be a few more registers or staff to help him out haha.

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?

- I did notice this and saw that it worked well. It looked realistic as I've personally done this at my own job many times. You want your customers to view all of your stores stock so if something is in the way you'd happily move it for them.

* Employee AI Feedback

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

- I think the employees made good decisions and worked well. The would move out of the way of customers and do keep the shelves stocked until full. The only time I would suggest they arent realistic is in the bug I experienced in a previous answer. Maybe if the workers could move past customers to the tile behind them when surrounded?

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 I did notice this and thought it worked as intended. The instance it did not was when the worker was surrounded by shelves and the remainder of tiles by customers. They couldn't move for the customer as all available tiles have been taken.

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

- If the employees could move past customers if all surrounding tiles are occupied, or if they could greet customers when in proximity to the door.

* 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 behaviour, however again in the bug I experienced earlier, there were some tiles free next to other customers, but they did not move even after 5 seconds to let others pass, as they wanted only what was in their pathway. This may have also been part of the bug, I am not sure.  
Despite the bug I beleive the original reaction is realistic. All custoemrs wish to shop and view the merchandise in store, and are normally polite to each other and happy enough to move out of the way of others when needed.

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

- If the customers could perhaps not always have a set path through the shelves and store as they seem a little robotic, or if the customers would perhaps speak to each other as well as the workers.

* 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?

- Yes I did notice characters interacting and speaking to each other. The actions seemed realistic despite the lack of animations ect. and I think it's also very realistic that the characters relationships change depending on who or what they're talking about. It is a nice subtle addition to the game.   
Perhaps if the character lost relationship with another character they would be in a 'bad mood' for a certain time after the conversation. In the case of a worker it could affect their productivity or how slow they work. The customer would perhaps leave the store quicker or not spend as much money.

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.

- The examples given above are exactly what I was going to recommend! Speech bubbles above characters who are talking, happy/sad faces, or even a simple red minus (-) or green plus(+) symbol would give the player more insight into what effects the conversations are having.

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?

- I did notice these traits and thought they were a nice and realistic addition to the behaviour of the characters! I like the idea of if a character is lazy they will move slower, or if a character is helpful they will speak more to customers. I think this is very realistic interation, and could be used in a lot of different scenarios.   
Workers who are alert could move trolleys more quickly, help customers more ect. Workers who are friendly and raise their relationship when in a conversation could put a positive effect on a customer for a short time period and this makes them buy more items. Negative and brash workers would have the opposite effect in conversations, making the customer leave quicker or making the worker slack off more.

* 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.

- Although the path seemed optimal, I noticed most if not around 90% of customers took the exact same path through the store, shelf by shelf, tile by tile. This seems unrealistic as customers in real life back track and look around a lot more, expecially if they've never been to that store before and dont know the layout. Although it may be the quickest and most optimal, it is not the most realistic.

* 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.

- I like this idea and it seems very realistic. Unless youve been to a store a lot you do not know where every item is in there, so for a customer to actively search the shelves and aisles in my opinion would make it far more realistic. New shoppers to the store would not know where they are going straight away, so it would be a nice touch.   
It would also make the pathfinding more realistic instead of the customers walking in the exact same path/at the same pace as everyone else. Customer/worker interactions would also be more realistic, as they could look for an employee when needing 'help' or a conversation.

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?

- I agree with this idea also. Once again, you as a customer do not always know where everything is, so walking around and actively looking for the products they need seems far more realistic than simply following a strict optimal path. They would walk around the store more realisticly, and also spend more time in the store in theory.

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.

- A symbol to show characters conversing. (speech bubble, symbols ect)  
- Customers asking for directions to certain items they need, workers walking with them to the desired shelf.  
- Negative and psoitive effects of relationship numbers going up or down.   
- If a queue is forming of more than a certain number of customers, relationship staus goes down, some customers may leave entirely.  
- Workers becoming tired, making their productivity or speed slower.   
- Different paths for customers, perhaps some are new and have no knowledge of the store so spend more time looking, others have been before and have a shorter path to the register.