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CS-550

Dr. Roch

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Assignment 1 Part 1 – Pair Programming

1. The anecdote that Williams and Kessler used to argue that pair programming only works if you are able to accept criticism was a real-life scenario in which a programmer submitted his code for review, and a programmer found 17 bugs in a mere 13 lines of code. The anecdote was that if the programmer hadn’t submitted his code for review due to his ego forcing him to believe that his code was perfect, those bugs would not have been found and therefore he would have submitted broken code. This anecdote shows that being able to accept criticism allows the programmer to have his code be perfected not through only their eyes, but through the eyes of others who may have more experience or expertise, therefore allowing the programmer themselves to become a better programmer through this.
2. The role for the person not currently using the keyboard is for that person to review the code being typed onto the screen and continuously analyze the code. This means that as one person is typing, the other person should be thinking about what the code being typed is doing, how it will affect the whole function / file, and what could potentially be wrong with the code, aka, looking for errors or bugs that the code could cause / be causing.
3. Williams and Kessler suggest that taking turns at the keyboard is essential as communication must be effective and is critical to the pair programming process. In turn, this means that if one programmer has an idea on how to implement a certain style or certain piece of code and auditory explanation is not enough, it is crucial that each of the programmers share the keyboard in order to be able to fully communicate their ideas, hence, typing code that the other programmer wants to try and implement.
4. I believe that the SpaceX Falcon 9 reusable rocket would be considered an episodic agent. I say so as the rocket would make its next decision, particularly landing in this example, based on what state it is currently in. I do not believe that the rocket would have to look at it’s previous states to make its next judgment based on landing, as the state it is currently in would determine what the next move should make. If it is in orbit, it would make moves based on its current state in orbit and not look back and create decisions that happened while in earth.
5. Goal-based agents work towards a specific objective where as Utility-based agents work to increase the value of something measurable (Roch). Goal-based agents would require a certain process and way on how to perform a certain task in order to reach the end goal, otherwise known as the objective. For example, if a Goal-based agent was used to solve a mathematics problem, it would require steps to be taken in order to reach the ultimate end goal, finding the solution to the mathematics problem. If a utility-based approach was used for a mathematics problem, it’s objective would not simply be to solve the mathematics equation, but rather to find the best way to achieve the solution. An example where a utility-based method would be efficient over a goal-based method would be a hypothetical “cooking robot”. The robot with a utility-based agent would try and make a cake that would please the user’s liking to the maximum enjoyability, whereas a goal-based cooking robot’s objective would be to simply make a cake; it doesn’t matter if the user likes the cake, the goal of the robot was to make a cake and the enjoyability of it does not matter to the robot.
6. One rule that might be modified by the agent’s learning element would be the weather. If there is rain, then the plants on the farm may not need to be watered as much as usual. For example, California does not see much rain throughout the year, so the critic would adjust the learning agent to provide proper irrigation based on typical sunny California weather. However, if rain occurs, then the agent would be modified as the irrigation of the plants is already being taken care of by the rain, the system will detect that and modify the agent’s learning element to be acclimated to rainy weather. Another example would be if there were different types of soil in the farm. Different types of soil require different methods of irrigation, as some soil requires a lot of water while some other soil may require less water. Let’s say for example that a new type of soil was introduced as it advertises itself as a better product then the already existing soil. The soil management system would have the critic recognize this and modify the learning agent to detect and recognize what this soil may need (less water, more water, etc.).