Math PEA

Austin St-jean

The topic I have chosen for this assessment is the subject on truth tables. On this topic in math I have learnt about a variety of symbols all meaning different things. We see these symbols in truth tables and they interpret whether two statements are true or false. The statements can be something as simple as I went to the beach and I went swimming in the water. These symbols help us understand whether one of these statements depend on the other if they are likely and if they can be true or false. For example we can ask, does p (I went to the beach) imply q (I went swimming in the water).To summarize what this means, if p then q. Therefore, if I went to the beach then I went swimming in the water. This is a fairly likely statement. We can ask the opposite, does q imply p. If I went swimming in the water, then I went to the beach. This statement is fairly true.

In computer science this topic is used in java programming. It is used in different statements and conditions in our code. In java programming we make different kinds of programs that do different things. Some calculators that print number and calculations. Others print text and print different kind of text depending on the input of the program. In java programming we call these symbols logical operators. Since coding has its own language, we type these symbols a bit differently. && meaning and, || meaning or, ^ meaning xor and ! meaning not. We often find these operators in loop conditions when the program must check if a variable satisfies the condition of the loop to enter it.

For example, say we want to make a program that prints a number which represents age, inputted from the keyboard when it is between 0 and 100. We first ask the user what the age is. In a program like this there is room for error. The user could input a negative age or an age greater than 100. In this case we make a boolean variable and call it whatever we want. This variable will then equal this equation, (age >= 0 && age <= 100);. Here we see the operator &&. The reason we used && is because we must check for two condition. The age must be greater than or equal to 0 AND less than or equal to 100. If the number satisfies this it means it is true. The way we check for errors is by adding a line of code after this one. If the number doesn’t satisfy the condition, it returns false. The line that we add will look like this if (! variable). Here we see the ! operator meaning not also meaning the opposite. If our user satisfies this statement, we ask then to renter the age and the loop is continued until the first condition is satisfied. To summarize truth tables and logic operators we use them to check if statements are true or false. In java programming they are helpful for a program to understand when and when not to enter a loop.

Reference: <https://www.w3schools.com/java/java_operators.asp>

<https://www.programiz.com/java-programming/operators>

<https://www.youtube.com/watch?v=6djggrlkHY8>