**Learning Module 3**

**Part 1:**

**Question 1:**

This program essentially is a math tutoring program, but the operator is random as well as both numbers. There are 4 values that are essential to make this work. The first is a placeholder for the user’s answer, the second and third are for the two random numbers random numbers, and the final value is a random number to help determine what operator to use. Once the final value is determined, the algorithm continues. Since there are only 5 possible outcomes, there are five scenarios that might happen. Each one is specific to what the operator is, which is either +, -, \*, /, or %. Generally, the user is asked what randomNumber1 (+, -, \*, /, or %) randomNumber2 is. Then the user enters what they think the answer is and that guess is assigned to the first placeholder. Based on what the user’s answer is, the computer tells the user if they were right or wrong, and if they were incorrect the correct answer is displayed.

**Part 2:**

**Question 1:**

This program calculates what date Thanksgiving will be on based on what day the first of the month was. In this, there are 3 important values. The there is a first day variable which is a placeholder so that the user can enter what the first day of the month is. The second is how many days the first day of the month is from the first Thursday of the month. Finally, the third value is a placeholder for the date of thanksgiving. The user is asked what the first day of November is. Then, the days away from the first Thursday of November is calculated. Since the earliest date of Thanksgiving is November 22, the basic calculation is (1+(7\*3)). Next, the distance from the first day of November to the first Thursday in November is added to default value of Thanksgiving. This value is then printed in the message “Thanksgiving is on November \_\_”, where \_\_ is (1 + (7 \* 3)) + daysFromThurs. If the user does not input a number between 1 and 7, an error message is printed.

**Part 3:**

**Question 1:**

This program is a rock, paper, scissors game. For this program, only two values are needed, one for the user’s choice and one for the computer’s choice. The computer’s choice is based on a random number from 1-3, while the user’s choice is a number from 1-3 that the user inputs. Depending on whether the user chooses rock, paper, or scissors, the algorithm will look at what the user input compared to the random number generated for the computer and print out the corresponding message. For example, if the user chose rock and the computer chose scissors, it would print “You won! Good job!”, indicating that the user won. If, however, the user does not input a number from 1-3, an error message will be displayed, stating, “Invalid entry! Enter 1 for rock, 2 for paper, and 3 for scissors.” This is for reference if the user can’t remember what the options were.