

Evo Simulated Computer Programming Exercises

Students should be encouraged first to draw a structured flowchart for their programs. The “Evo Simplified Computer Coding Form” on page 15 can be duplicated for students to use when writing their corresponding simulated computer programs. The program *SimulatedComputerTemplate.ozocode* can then be opened in OzoBlockly, where the students key in their program instructions and constants in the “Define Program” subroutine. Students can then test their programs by loading the OzoBlockly program into Evo and running the programs on the Ozomap provided on the last page of this document. Finally, if necessary, they can debug their programs until they are running correctly.

Program Exercises with Simple Sequence Structure

1. Write a program to input three numbers and output the cumulative sum after each of the three numbers has been input.
2. Write a program that will input a value for x , calculate the value of $y = 3x^2 - 7x + 4$, and then output both the value of x and y .
3. Write a program to input a value for A and for B , and then output the remainder when A is divided by B .

Program Exercises with Selection Structure

4. Write a program that will input a number N and then output both the number and its absolute value. Test the input values -7, 0, and 9.
5. The National Weather Service has indicated the average snowfall is in a ratio of 10 inches of snow to 1 inch of equivalent rainfall. More densely packed, wet snow is in the ratio of 8 inches of snow to 1 inch of equivalent rainfall, and the ratio for powdery snow is about 14 to 1. Write a program that will first input a number of inches of rainfall. Then it should input a code of 1 for average snow, 2 for wet snow, and 3 for powdery snow. Finally, it should output the number of inches of snowfall that the inputted number of inches of rainfall would be equivalent to.
6. Write a program that will input three numbers A , B , and C , determine the largest of the three numbers, and then output the largest number.

Program Exercises with Iteration Structure

7. Write a program that will input a positive or negative number, calculate the square of the number, and then output the square of the number. This process should be repeated until the number zero is entered, to signal that the process should stop.
8. Write a “Blast off!” program that will input a positive integer N and then countdown from N to 0, inclusive. For example if the value 5 is the input value, then the output would be 5, 4, 3, 2, 1, 0.
9. A movie theater charges \$8 for an adult ticket and \$5 for a child ticket. Write a program that will input the number of adults in a party followed by inputting the number of children. The program should then calculate and output the total price of all tickets for the party. This process should continue for any

number of parties of moviegoers, and be flagged for stopping by entering a negative number for the number of adults.

10. Imagine that a teacher gives her class four 10-point quizzes during a particular grading period. The teacher would like the average of the four scores computed for each student. Write a program that will:
- Input the four quiz scores for each student, flagging the end of the data when a negative number is entered for the first quiz score.
 - Output each student's average score. (Fractional scores should always be "rounded" down. For example, $8.25 = 8$, $9.75 = 9$, and $7.5 = 7$.)