Reporting Tasks

a)

Variable	Identifier	Type
Evolving Fault	e_fault	String
λ, Gradient or rate of change of the curve	v_gradient	Double
Voltage Dip	v_voltageDip	Double
Permanent Fault	p_fault	String
Δt□,Time interval between the last neutral current distortions and a flashover (real number)	v_timeInterval	Double
Option to allow user to retry the program	retry	String

b) This program obtains the users input progressively when they are needed in each node in the decision tree. This is because each decision node is affected by different inputs enter by the user. For example, the user is asked whether it was the Evolving fault causing the overhead line tripping, if the user entered yes then it will show an output saying a CT explosion is the reason why the overhead line tripped and if the user entered no it will move on to the next decision process to find out the cause of the overhead line tripping. This allows the user to obtain the cause of overhead line tripping much faster rather than having to wait until the end of the program which is a waste of time when one of the earlier user inputs are the reason why the overhead line tripped.

Testing Tasks

a)

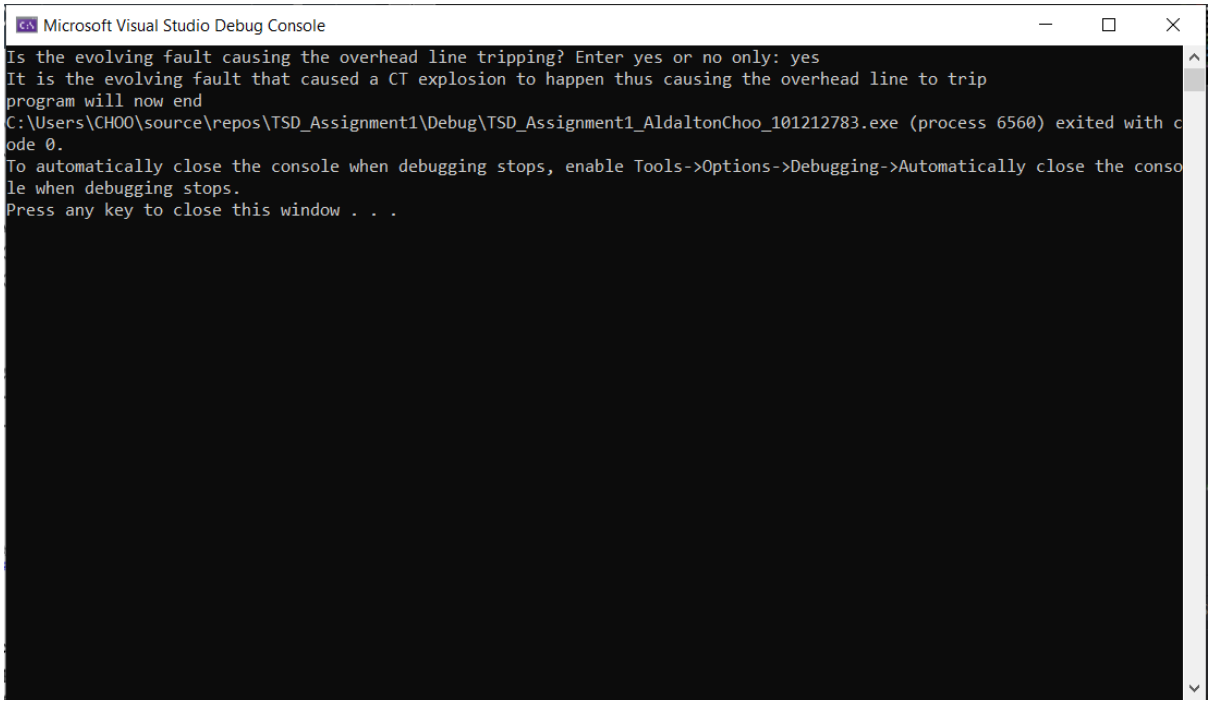

Figure (1): Output 1 showing CT explosion is the cause for overhead line tripping

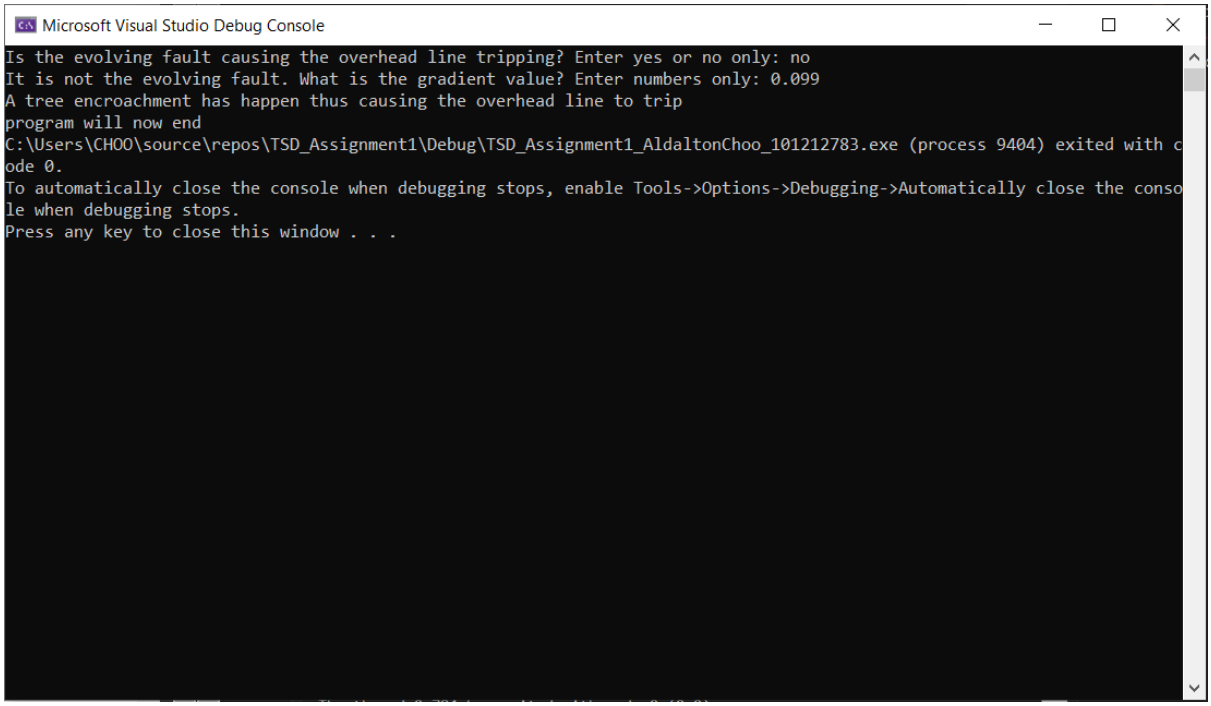

Figure (2): Output 2 showing Tree encroachment is the cause for overhead line tripping

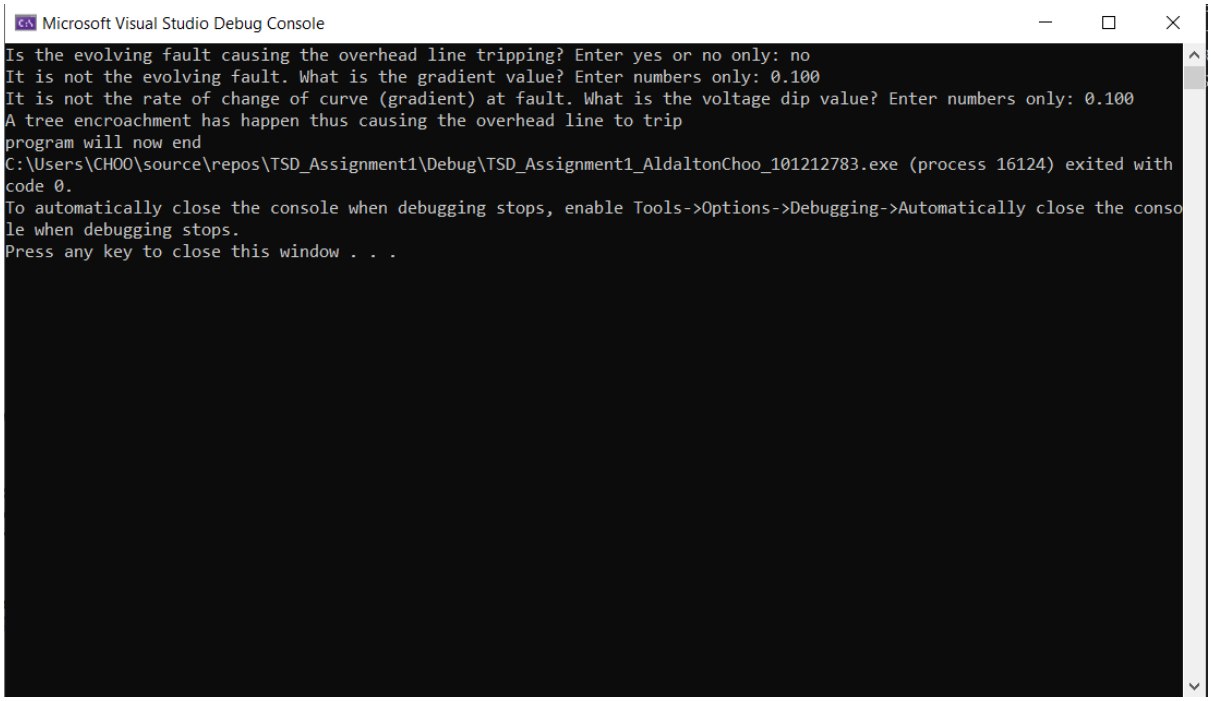

Figure (3): Output 3 showing Tree encroachment is the cause for overhead line tripping

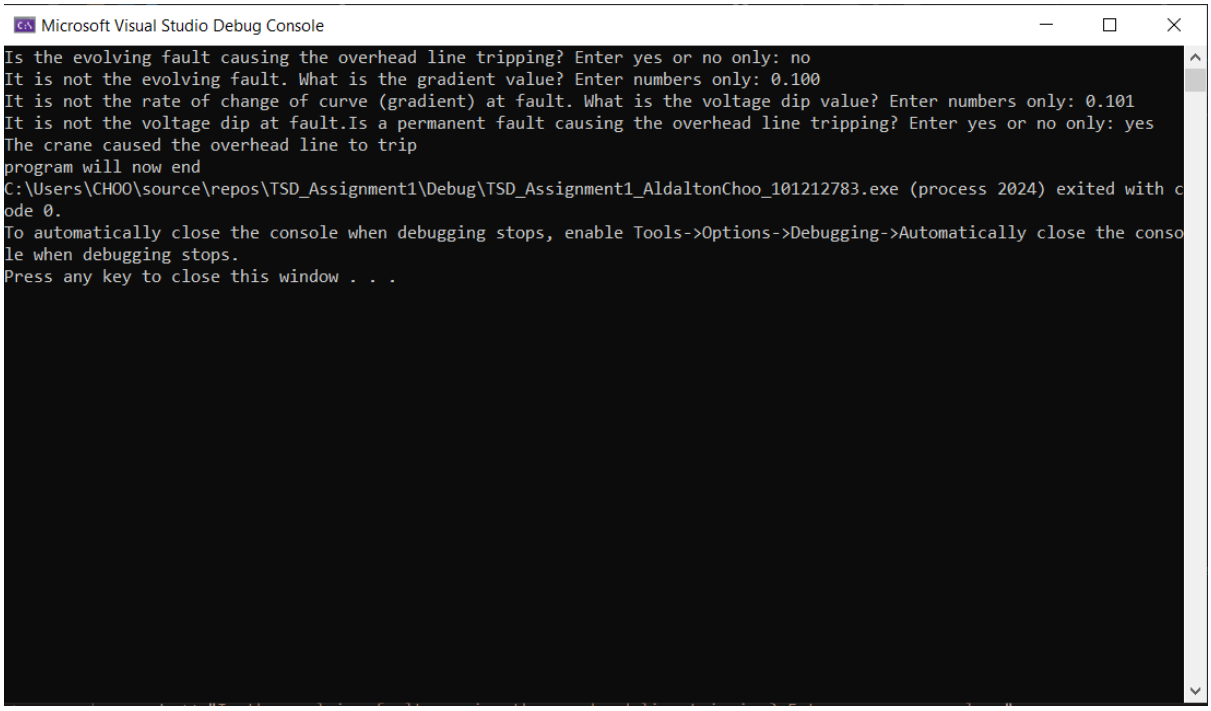

Figure (4): Output 4 showing A crane is the cause for overhead line tripping

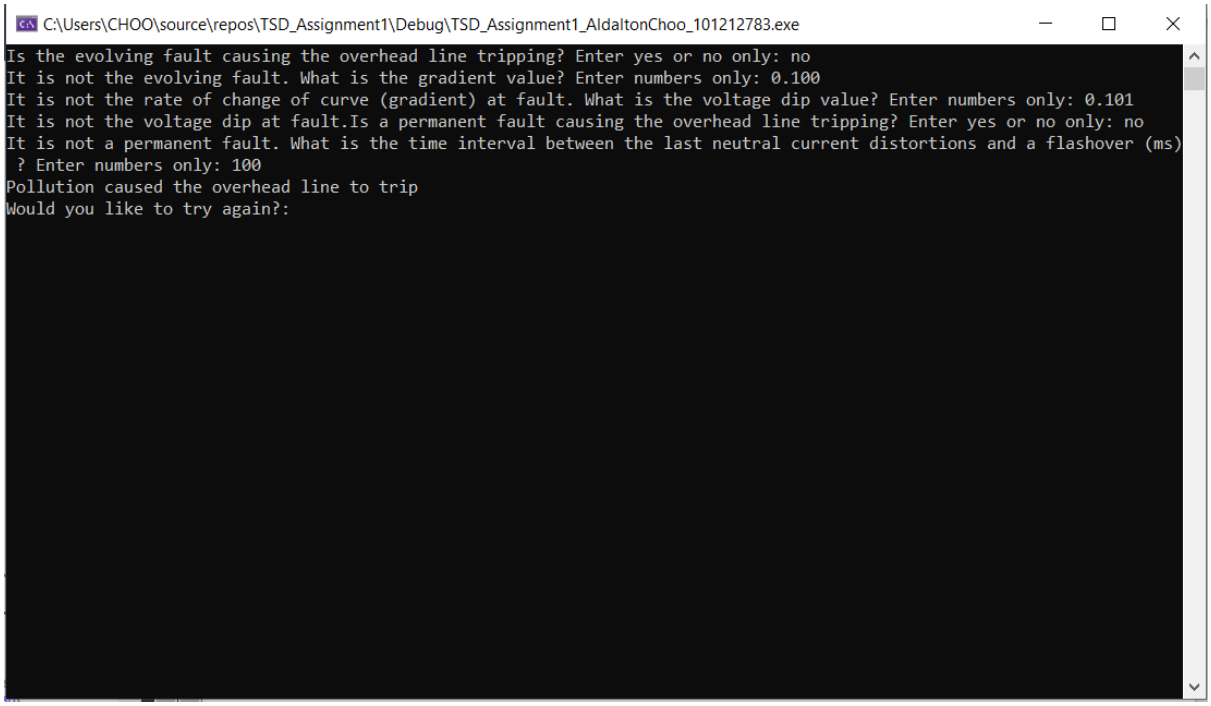

Figure (5): Output 5 showing pollution is the cause for overhead line tripping

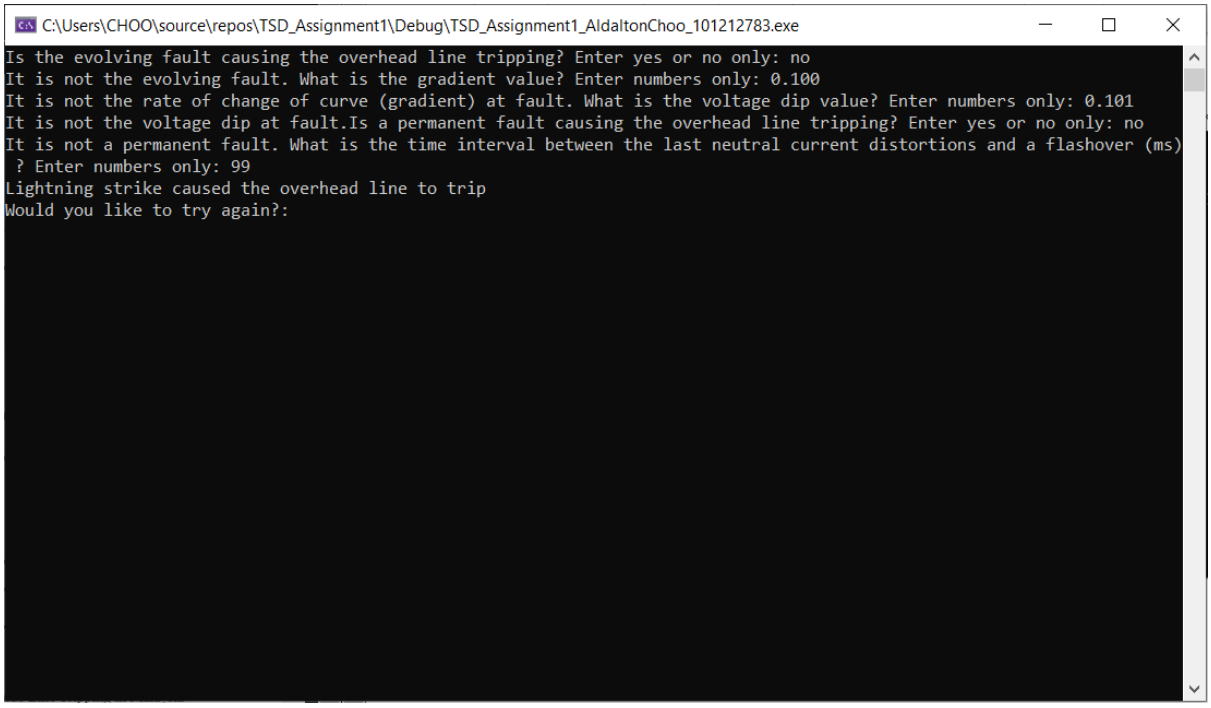

Figure (6): Output 6 showing Lightning strike is the cause for overhead line tripping

b)

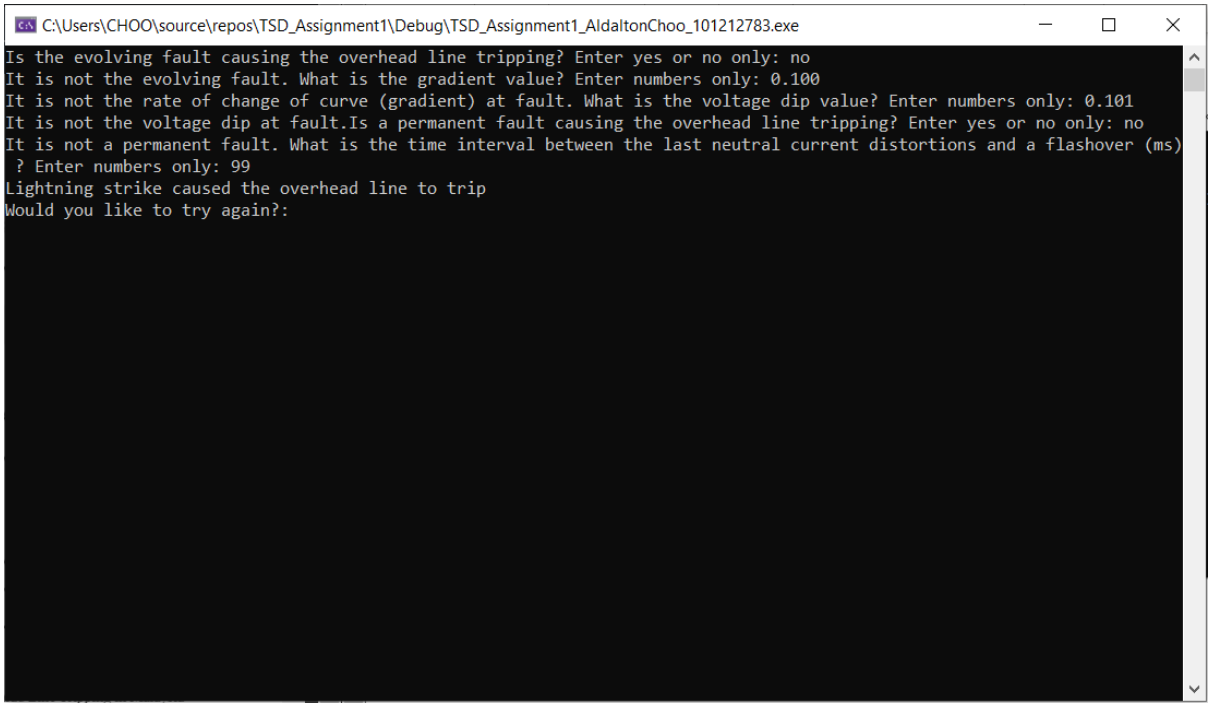

Figure (7): Challenge task 1 part 1 Asking user if they want to repeat the process

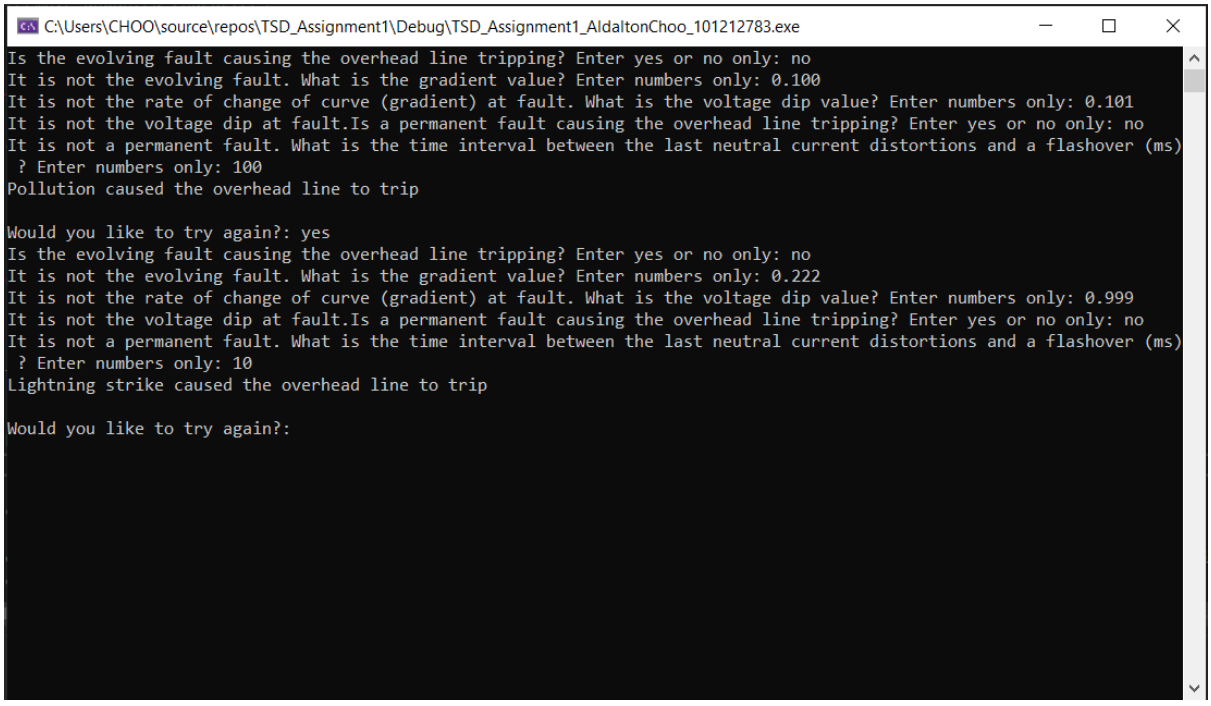

Figure (8): Challenge task 1 part 2 If user enters yes, the whole process is repeated

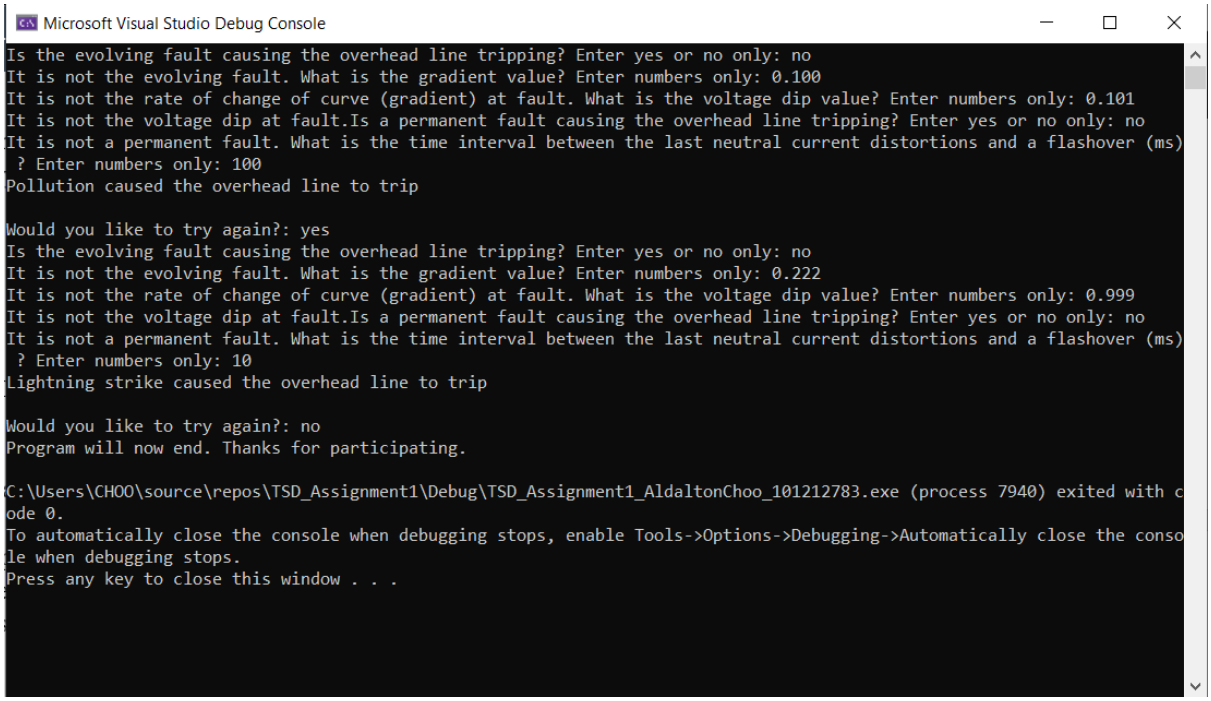

Figure (9): Challenge task 1 part 3 If user enters no, the program will terminate

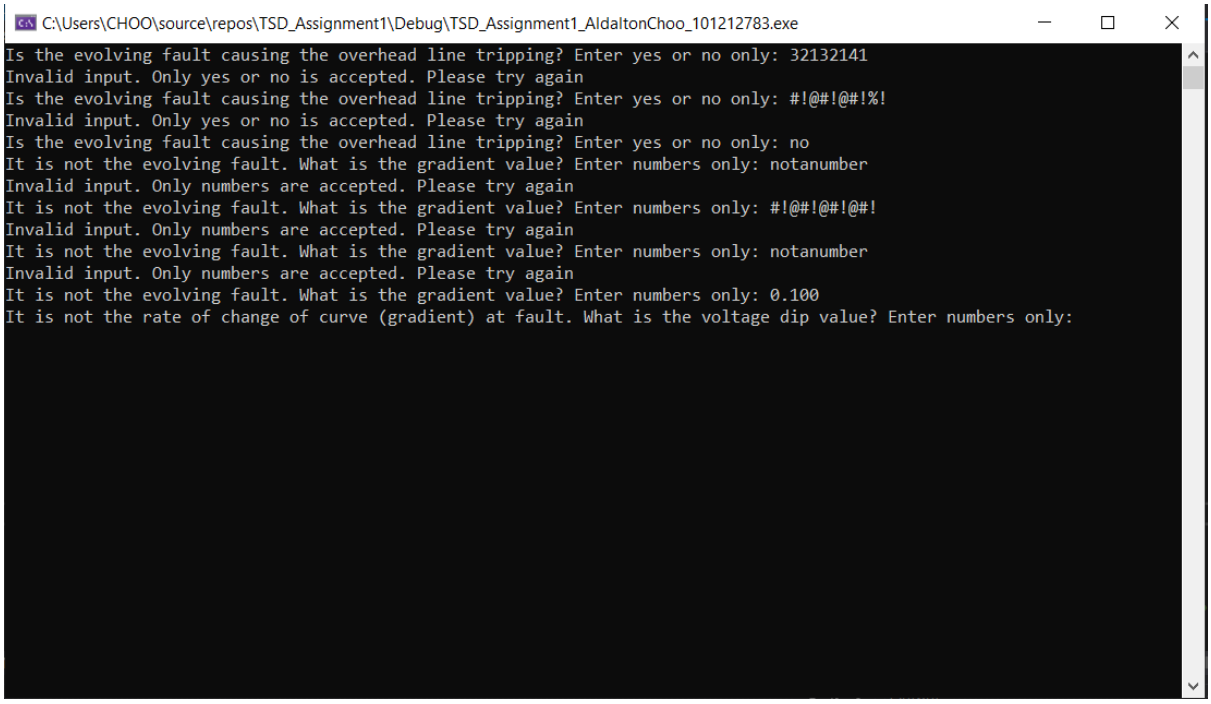

Figure (10): Challenge task 2 part 1 input validation for both binary value and real number input

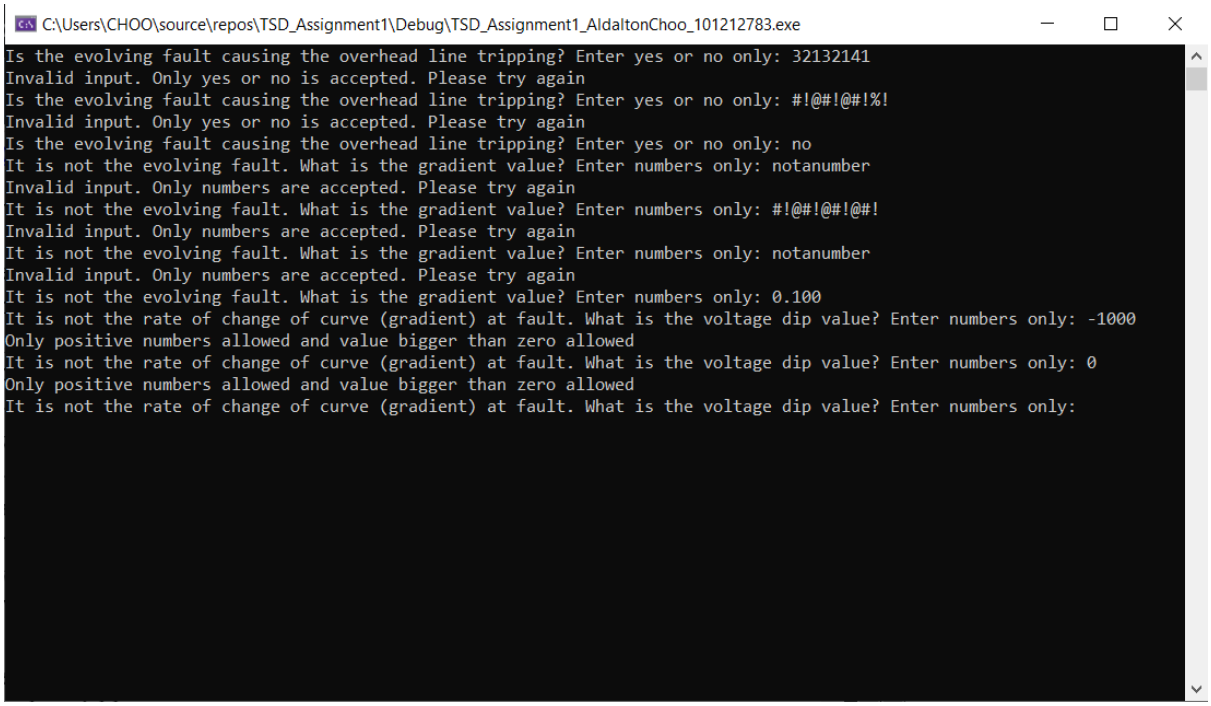

Figure (11) Challenge task 2 part 2 users are not allowed to enter negative values or value smaller than zero.