Project

In any hardware design, timing is an important parameter. This project requires you to find the shortest path in terms of delay between an input and an output of a circuit. You need to model the circuit as a graph and apply Dijkstra's shortest path algorithm between a user provided input and output to the circuit. We will ONLY consider circuits from the ISCAS'85 benchmark list (no sequential circuit). Here is the list of circuits:
https://filebox.ece.vt.edu/~mhsiao/iscas85.html

To calculate the delay of each gate, assume an integer multiple of its fan-outs. For example, consider the following snippet:

A = AND (B, C)
D = NOT (A)
E = BUF(A)
F = NOR (A, M)

In this case, the AND gate corresponding to A has a fan-out of 3. Therefore, the path B → A will have a delay of 3 units. Similarly, the path C→ A also has a delay of 3 units.

Your program should be in either C/C++. **Make sure your program runs on the departmental server. Download NoMachine and connect to engnx.utdallas.edu.** Your code MUST RUN in this server. If it doesn't, you will receive no credits. Please submit a zipped folder with your code and a Makefile. Please DO NOT include anything else. We DON'T need a README. We will compile your code by using "make". Your executable output MUST be named *iscas*. We will run your code as:
./iscas c17.bench G1gat G22gat

Where G1gat and G22gat is an input and an output to the c17.bench file, respectively. If the file name is wrong, your program should output "**Wrong file name**" and terminate. If the input and/or output is wrong (e.g., signal name input is comet), your program should output "**Signal comet not found in file c17.bench**" and terminate. If both names are wrong, just mentioning one name is sufficient. You can use a threshold of 100 to break combinational loops, if any.

Please remember we will do a check of your code. Any similarity with your colleagues' codes or any open source code, including Github, will receive ZERO credits.