

Test cases	Input	Expected output
1	Valid input AND existed blank-file.txt Run: ./graphexe testgraph1.txt <i>Process → Command</i> 0 → echo hi there:1:blank-file.txt:echo-out.txt 1 → echo wazzup:2 3:blank-file.txt:echo2-out.txt 2 → cat:4:echo-out.txt:cat-1.txt 3 → cat:4:echo2-out.txt:cat-2.txt 4 → cat cat-1.txt cat-2.txt:none:blank-file.txt:sink.txt	Executed orderly and accordingly : process 0 get to execute completely, then process 1 and 2 get to execute parallel, next process 3, and process 4 Output: <i>Process → Output</i> 0 → Crated echo-out.txt contains “hi there” 1 → Crated echo2 -out.txt contains “wazzup” 2 → Crated cat-1.txt contains “hi there” 3 → Crated cat-2.txt contains “wazzup” 4 → Crated sink.txt contains “hi there wazzup”
2	Valid input BUT not existed blank-file.txt Run: ./graphexe testgraph1.txt <i>Process → Command</i> 0 → echo hi there:1:blank-file.txt:echo-out.txt 1 → echo wazzup:2 3:blank-file.txt:echo2-out.txt 2 → cat:4:echo-out.txt:cat-1.txt 3 → cat:4:echo2-out.txt:cat-2.txt 4 → cat cat-1.txt cat-2.txt:none:blank-file.txt:sink.txt	The main program prints out error message and terminate. Error message: “-bash: blank-file.txt: No such file or directory There is invalid input file.”
3	No input file for main program Run: ./graphexe	The main program prints out error message and terminate. Error message: “Invalid command line - usage: <input file>”

4	Invalid input for main program Run: ./graphexe nothing.haha	The main program prints out error message and terminate. Error message: “Invalid input file”
5	Invalid input file of child process Command in main program input fire: cat:6 7:invalidInput.txt:cat-3.txt	The main program prints out error message and terminate. Error message: “Error opening input file invalidInput.txt”
6	Invalid output file of child process Command in main program input fire: cat:6 7:cat-3.txt: invalidOutput.txt	The main program prints out error message and terminate. Error message: “Error opening output file invalidOutput.txt”
7	The input file have more than 50 node	The main program prints out error message and terminate. Error message: “Error: There are more than 50 node in the input file”
8	The command line from input file exceed 1023 character	The main program prints out error message and terminate. Error message: “Error: Line too long, ignoring...”
9	Using script to test by execute the program 5000 time	Executed orderly and accordingly. Every processes are executed completely
10	Generate multiple layer of process to test the program (e.g. 17 nodes) Input file with 17 nodes: echo dummy 01:3 14:blank-file.txt:echo1-out.txt	Executed orderly and accordingly

echo dummy 02:3 15:blank-file.txt:echo2-out.txt
 echo dummy 03:4 5 14 15 16:blank-file.txt:echo3-out.txt
 diff echo1-out.txt echo2-out.txt:5 6:blank-file.txt:diff1-out.txt
 cat:6 7:echo3-out.txt:cat-3.txt
 cat:8:echo1-out.txt:cat-1.txt
 cat:8:echo2-out.txt:cat-2.txt
 mv echo3-out.txt mv1-out.txt:8:blank-file.txt:mv1-out.txt
 ls:9:blank-file.txt:ls2-out.txt
 gzip -cvf:none:ls-output.txt:ls-output.txt.gz
 echo A node without parent and child:none:blank-file.txt:echo4-out.txt
 ls:5:blank-file.txt:ls1-out.txt
 echo dummy 04:3:blank-file.txt:echo4-out.txt
 cat:8:echo4-out.txt:cat-4.txt
 cp echo1-out.txt cp1-out.txt:16:blank-file.txt:blank-file.txt
 cp echo2-out.txt cp2-out.txt:16:blank-file.txt:blank-file.txt
 cp echo3-out.txt cp3-out.txt:8:blank-file.txt:blank-file.txt

