**Input file “mux4to1gate.txt”: saved some location**

module mux4to1gate(y,i,s);

output y;

input [3:0]i;

input [1:0]s;

wire w1,w2,w3,w4,w5,w6;

not(w1,s[0]);

not(w2,s[1]);

and(w3,w2,w1,i[0]);

and(w4,s[0],w1,i[1]);

and(w5,s[1],w2,i[2]);

and(w6,s[1],s[0],i[3]);

or(y,w3,w4,w5,w6);

endmodule

**(i) Python code for reading the file:**

file\_path = r"F:\mux4to1gate.txt"

with open(file\_path, 'r') as file:

data = file.read()

print(data)

**(ii) Python code for finding inputs and outputs:**

file\_path = r"F:\mux4to1gate.txt"

keywords = ["and", "or", "not", "nand", "nor", "xor", "xnor", "buf"]

results = []

with open(file\_path, 'r') as file:

for line in file:

for key in keywords:

if re.search(rf"\b{key}\b", line):

start = line.find("(")

end = line.find(")")

if start != -1 and end != -1:

content = line[start + 1:end].split(",")

if len(content) > 1:

output = content[0].strip()

inputs = [inp.strip() for inp in content[1:]]

results.append(f"{key}: Output = {output}, Inputs = {', '.join(inputs)}")

for result in results:

print(result)

**Expected output:**

not: Output = w1, Inputs = s[0]

not: Output = w2, Inputs = s[1]

and: Output = w3, Inputs = w2, w1, i[0]

and: Output = w4, Inputs = s[0], w1, i[1]

and: Output = w5, Inputs = s[1], w2, i[2]

and: Output = w6, Inputs = s[1], s[0], i[3]

or: Output = y, Inputs = w3, w4, w5, w6