

Question 1:

i) A test that achieves 100% branch coverage will also achieve 100% statement coverage. Branch coverage means that for branches in a program, each branch should be executed at least once during the testing process. In the case of an If statement, we will have two conditions to test so there will be two “branches”, so when the first condition is not met it will move on to the next condition resulting in 100% coverage.

Example:

```
def isGreaterThanTwo(num):  
    if(num < 2):  
        print("It's less than 2")  
    else  
        print("It's greater than 2")
```

isGreaterThanTwo(3)

ii) 100% statement coverage does not mean 100% branch coverage. 100% coverage doesn't mean that we find all the problems within our code. In the case of an If statement, we will have two conditions to test so there will be two “branches”, so when the first condition is met then it will not reach the next condition.

Example:

```
def isGreaterThanTwo(num):  
    if(num > 2):  
        print("It's greater than 2")  
    else  
        print("It's less than 2")
```

isGreaterThanTwo(3)

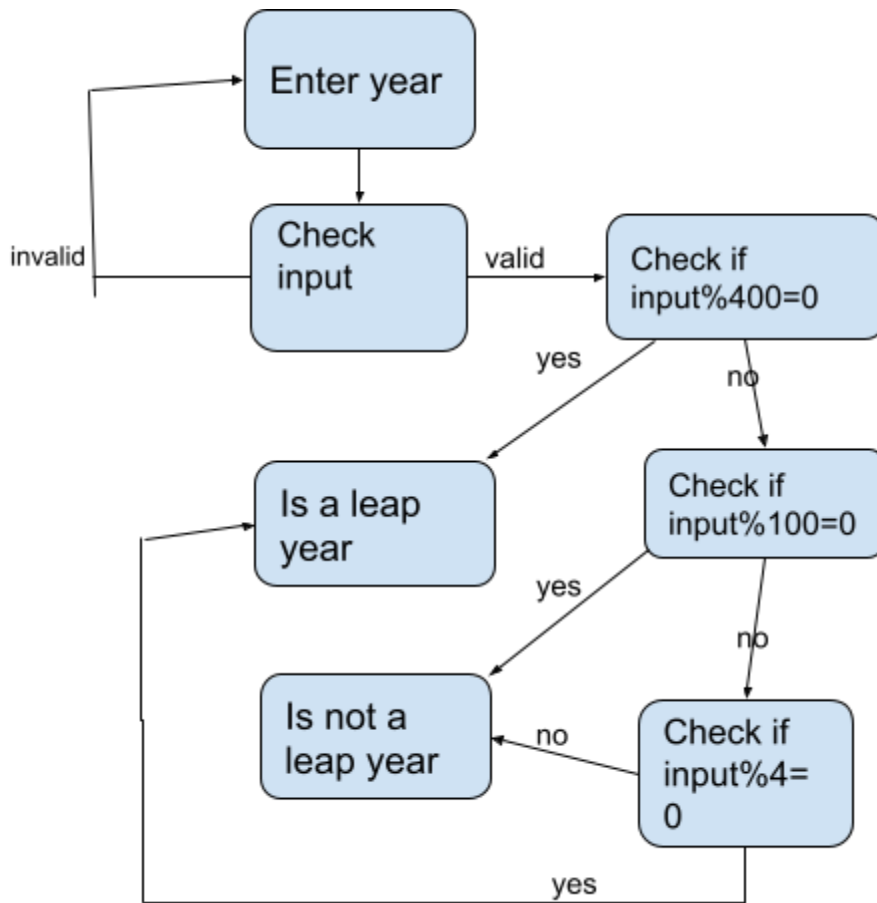
Question 2:

inputs	Coverage %
a = 0.3, b = 0.35	6/8 = 75%

It is not possible to get a 100% coverage

Question 3:

i)



ii)

input	Branch coverage
2021	$\frac{4}{8} = 50\%$

input	Statement coverage
2021	$\frac{5}{8} = 63\%$

Question 4:

i)

Inputs	Outputs	Statement coverage
hour = 13, temp = 77	eat lunch, go , swim	9/9 = 100%
hour = 14, temp = 74	eat lunch, go	6/9 = 67%

ii)

There are 9 statements in total. The outputs were obtained by following the code. For the first input (hour = 13, temp = 77), there are 9 executed statements out of 9 total statements resulting in 100% coverage. For the first input (hour = 14, temp = 74), there are 7 executed statements out of 9 total statements resulting in 67% coverage.