

Exercise 1

Consider the following code fragment:

```
1  input x;  
2  if x > 0 then  
3      output x+1;  
4  else output x-1;  
5  end if;  
6  while x > 5 then  
7      if x = 10 then  
8          output "yes"  
9      else output "no"  
10     end if;  
11     x = x - 1  
12 end while;
```

- (a) What is the cyclomatic number for this code?
- (b) Identify the basis paths.
- (c) What is the minimal number of test cases to achieve 100% branch coverage?

Answer to 1

(a) 4

(b)

1,2,3,5,6,7,8,10,11,6,12

1,2,4,5,6,7,8,10,11,6,12

1,2,3,5,6,12

1,2,3,5,6,7,9,10,11,6,12

(c) 2

1,2,3,5,6,7,8,10,11,6,12

1,2,4,5,6,7,9,10,11,6,12 (note, this path is infeasible.

Applying basis path may generate this kind of test case. We need to be careful)