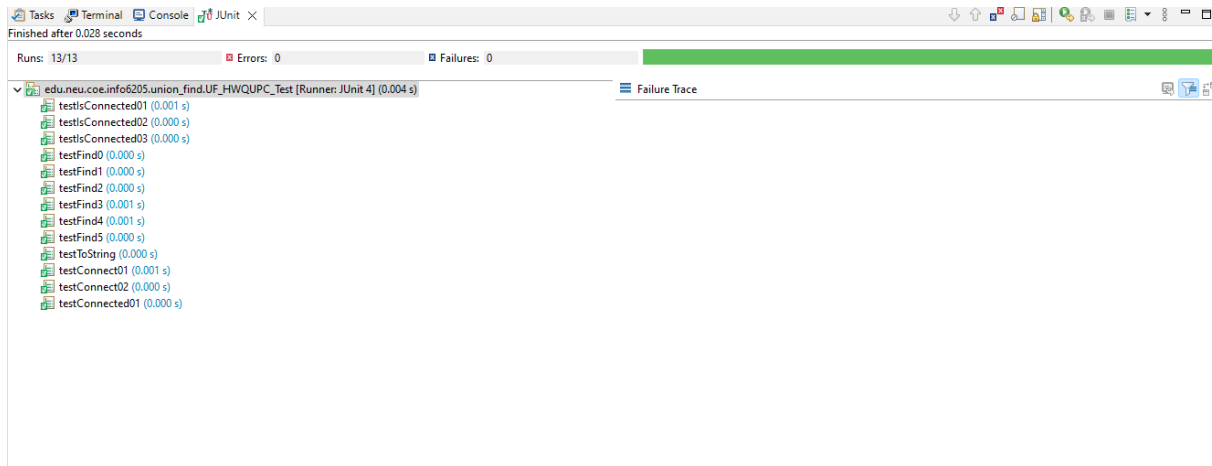


# INFO6205 Assignment 4 (WQUPC)

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## 1. Unite test result



## 2. Program output

```
Client with 100 sites starts
Graph is all connected
num of connect(a,b) function called 318 times
num of of valid connect(a,b) function called 99 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends
```

```
Client with 200 sites starts
Graph is all connected
num of connect(a,b) function called 818 times
num of of valid connect(a,b) function called 199 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends
```

```
Client with 400 sites starts
Graph is all connected
num of connect(a,b) function called 962 times
num of of valid connect(a,b) function called 399 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends
```

```
Client with 800 sites starts
Graph is all connected
num of connect(a,b) function called 2921 times
num of of valid connect(a,b) function called 799 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends
```

```
Client with 1600 sites starts
Graph is all connected
num of connect(a,b) function called 9240 times
num of of valid connect(a,b) function called 1599 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends
```

```

Client with 3200 sites starts
Graph is all connected
num of connect(a,b) function called 14235 times
num of of valid connect(a,b) function called 3199 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

Client with 6400 sites starts
Graph is all connected
num of connect(a,b) function called 31097 times
num of of valid connect(a,b) function called 6399 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

Client with 12800 sites starts
Graph is all connected
num of connect(a,b) function called 63042 times
num of of valid connect(a,b) function called 12799 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

Client with 25600 sites starts
Graph is all connected
num of connect(a,b) function called 132064 times
num of of valid connect(a,b) function called 25599 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

Client with 51200 sites starts
Graph is all connected
num of connect(a,b) function called 271065 times
num of of valid connect(a,b) function called 51199 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

Client with 25600 sites starts
Graph is all connected
num of connect(a,b) function called 132064 times
num of of valid connect(a,b) function called 25599 times
(connect(a,b) is not valid if a b is already connected before the function is called)
Client ends

```

### 3. Relationships

If  $m$  = number of connections and  $n$  is number of sites  
It obviously ALWAYS needs  $m = n-1$  valid connections to form a connected graph. A valid connection is connect(a,b) when a and b are not connected before the function is called.

If we includes the invalid connects called, the predict equation between the total  $m$  (the total number of connect(a,b) is called ) and  $n$  is following:  $m = -0.00000738718n^2 + 7.6185n -15844.2$

