DIT635 - Structural Testing Activity

1. **Draw a control-flow graph for the following method:**
   (A is an array, what is the element you are searching for)

```java
public int search(String[] A, String what){
    int index = 0;
    if ((A.length == 1) && (A[0] == what)){
        return 0;
    } else if (A.length == 0){
        return -1;
    } else if (A.length > 1){
        while(index < A.length){
            if (A[index] == what){
                return index;
            } else
                index++;
        }
    }
    return -1;
}
```

2. Write tests that provide statement, branch, and basic condition coverage over the code.

DIT635 - Loop Testing Activity

1. **Draw the control-flow graph for the following code:**

```
1. public boolean binary_search (Object key, Object[] T){
2.     int mid;
3.     int bott = 0;
4.     int top = T.length - 1;
5.     Boolean found = false;
6.
7.     if(T[0] == key){
8.           found = true;
9.     }else{
10.          found = false;
11.    }
12.
13.    while (bott <=top && !found){
14.          mid = round((top + bott) / 2);
15.          if(T[mid] == key){
16.                found = true;
17.          } else{
18.                if (T [mid] < key ){
19.                      bott = mid + 1;
20.                }else{
21.                      top = mid-1;
22.                }
23.          }
24.    }
25.      return found;
26.}
```

2. **Write a test suite that achieves loop boundary coverage**
   (That exercises the loops:
   - Zero times
   - One time
   - Two or more times)