**DIT635 - Structural Testing Activity**

1. **Draw a control-flow graph for the following program:  
     
   int search(string A[], int N, string what){  
    int index = 0;  
    if ((N == 1) && (A[0] == what)){  
    return 0;   
    } else if (N == 0){  
    return -1;  
    } else if (N > 1){  
    while(index < N){  
    if (A[index] == what){  
    return index;  
    } else  
    index++;**

**}  
}**

**}   
 return -1;  
}**

1. 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:**void Binary\_search (elem key, elem\* T, int size, boolean &found, int &L){  
    int bott, top, mid;  
    bott = 0;  
    top = size-1;  
    L = 0;  
     
    if(T[L] == key){  
    found = true;  
    }else{  
    found = false;  
    }  
     
    while (bott <=top && !found){  
    mid = round((top + bott) / 2);  
    if(T[mid] == key){  
    found = true;  
    L = mid ;  
    } else{  
    if (T [mid] < key ){  
    bott = mid + 1;  
    }else{  
    top = mid-1;  
    }  
    }  
    } // while  
   } //binary\_search
2. **Identify the subpaths through the loop and draw the unfolded CFG for boundary interior testing.**
3. **Write a test suite that achieves loop boundary coverage   
   (That exercises the loops:  
   - Zero times  
   - One time  
   - Two or more times)**