**CSCE 747 - Data Flow Testing Activity**

**Name(s):**

**Identify all DU Pairs in the following code:  
1.   
2. /\* External file hex\_values.h defined Hex\_Values[128]  
3. \* with value 0 to 15 for the legal hex digits   
4. \* and value -1 for each illegal digit including special  
5. \* characters \*/  
6.   
7. #include “hex\_values.h”  
8. /\*\* Translate a string from the CGI encoding to plain   
9. \* acsii text. ‘+’ becomes space, %xx becomes byte with hex  
10. \* value xx, other alphanumeric characters map to themselves  
11. \* Returns 0 for success, positive for erroneous input.  
12. \* 1 = bad hexadecimal digit.  
13. \*/  
14. int cgi\_decode(char \*encoded, char \*decoded){  
15. char \*eptr = encoded;  
16. char \*dptr = decoded;  
17. int ok = 0;  
18. while(\*eptr){  
19. char c;  
20. c = \*eptr;  
21.  
22. if(c ==’+’){ /\* Case 1: ‘+’ maps to blank\*/  
23. \*dptr = ‘ ‘;  
24. } else if(c == ‘%’){ /\* Case 2: ‘%xx’ = char xx\*/  
25. int digit\_high = Hex\_Values[\*(++eptr)];  
26. int digit\_low = Hex\_Values[\*(++eptr)];  
27. if(digit\_high == -1 || digit\_low == -1){  
28. /\* \*dptr=’?’ \*/  
29. ok = 1; /\* Bad return code \*/  
30. }else{  
31. \*dptr = 16 \* digit\_high + digit\_low;  
32. }  
33. }else{ /\*Case 3: All other chars map to themselves\*/  
34. \*dptr = \*eptr;  
35. }  
36. ++dptr;  
37. ++eptr;  
38. }  
39. \*dptr = ‘\0’;  
40. return ok;  
41. }**