Basis Path Examples - Solutions

```
1     void Example1() {
2         S0();
3         if (C1) {
4             S1();
5             while (C2) {
6                 if (C3) {
7                     S2();
8                 }
9                 else {
10                    S3();
11                }
12                S4();
13            }
14            S5();
15        }
16        else {
17            S6();
18        }
19        S7();
20    }
```
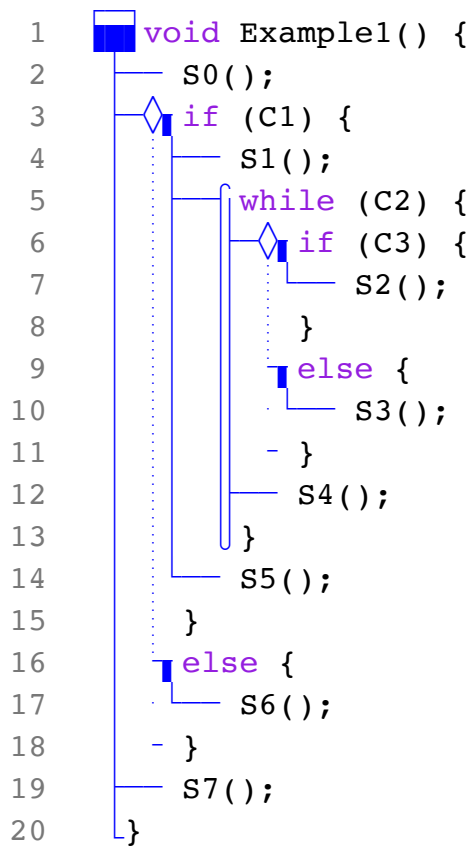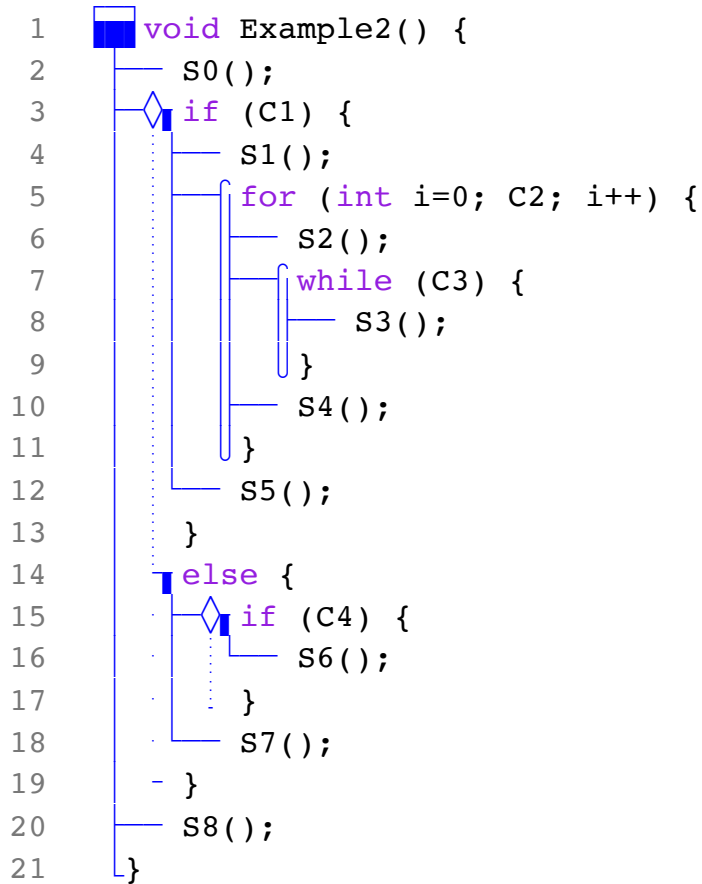
V (G) = 4   Note: In the Path column, it is not necessary to include the Cs in the line number designation if there are no multiple conditions in the line.

Path #	Path	C1	C2	C3
1	1-2-3-17-19	F	X	X
2	1-2-3-4-5-14-19	T	F	X
3	1-2-3-4-5-6-7-12-5-14-19	T	T/F	T
4	1-2-3-4-5-6-10-12-5-14-19	T	T/F	F

Basis Path Examples - Solutions

```
1    void Example2() {
2        S0();
3        if (C1) {
4            S1();
5            for (int i=0; C2; i++) {
6                S2();
7                while (C3) {
8                    S3();
9                }
10               S4();
11           }
12           S5();
13       }
14       else {
15           if (C4) {
16               S6();
17           }
18           S7();
19       }
20       S8();
21   }
```

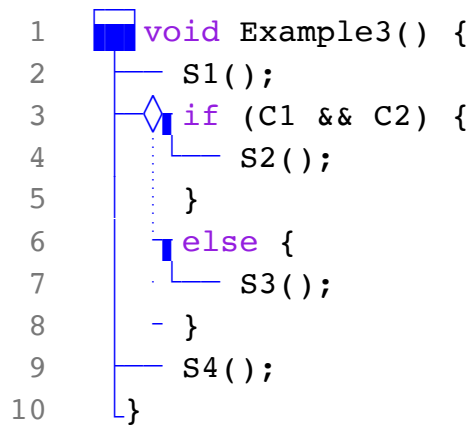**V (G) = 5**   **Note: In the Path column, it is not necessary to include the Cs in the line number designation if there are no multiple conditions in the line.**

Path #	Path	C1	C2	C3	C4
1	1-2-3-15-18-20	F	X	X	F
2	1-2-3-15-16-18-20	F	X	X	T
3	1-2-3-4-5-12-20	T	F	X	X
4	1-2-3-4-5-6-7-10-5-12-20	T	T/F	F	X
5	1-2-3-4-5-6-7-8-7-10-5-12-20	T	T/F	T	X

Basis Path Example with Multiple Conditions – Solutions

```
1    void Example3() {
2        S1();
3        if (C1 && C2) {
4            S2();
5        }
6        else {
7            S3();
8        }
9        S4();
10   }
```

V (G) = 3

Path #	Path	C1	C2
1	1-2-3C1-7-9	F	X
2	1-2-3C1-3C2-7-9	T	F
3	1-2-3C1-3C2-4-9	T	T

Basis Path Example with Multiple Conditions – Solutions

```
1    void Example4() {
2        S0();
3        if (C1 || C2) {
4            S1();
5            while (C3) {
6                S2();
7                if (C4 && C5 && C6) {
8                    S3();
9                }
10               else {
11                   S4();
12               }
13               S5();
14           }
15           S6();
16       }
17       else {
18           for (int i=0; C7; i++) {
19               S7();
20           }
21           S8();
22       }
23       S9();
24   }
```
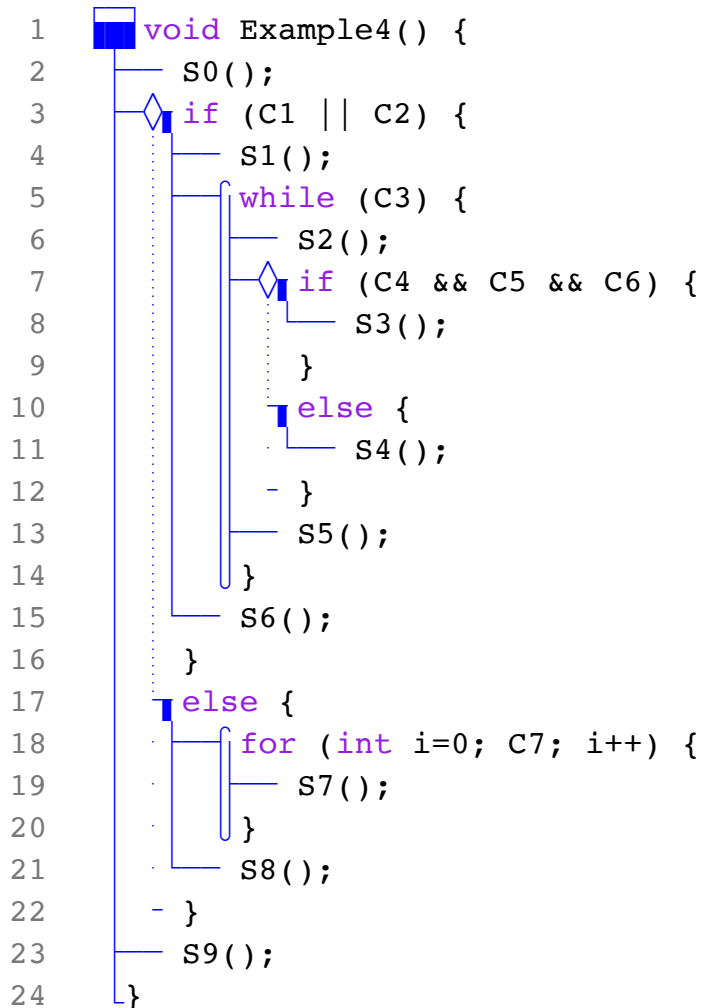
V (G) = 8   Note: paths 5, 6, 7, 8 could be replaced with paths 9, 10, 11, 12 to form a basis set of 8.

Path #	Path	C1	C2	C3	C4	C5	C6	C7
1	1-2-3C1-3C2-18-21-23	F	F	X	X	X	X	F
2	1-2-3C1-3C2-18-19-18-21-23	F	F	X	X	X	X	T/F
3	1-2-3C1-4-5-15-23	T	X	F	X	X	X	X
4	1-2-3C1-3C2-4-5-15-23	F	T	F	X	X	X	X
5	1-2-3C1-4-5-6-7C4-11-13-5-15-23	T	X	T/F	F	X	X	X
6	1-2-3C1-4-5-6-7C4-7C5-11-13-5-15-23	T	X	T/F	T	F	X	X
7	1-2-3C1-4-5-6-7C4-7C5-7C6-11-13-5-15-23	T	X	T/F	T	T	F	X
8	1-2-3C1-4-5-6-7C4-7C5-7C6-8-13-5-15-23	T	X	T/F	T	T	T	X
9	1-2-3C1-3C2-4-5-6-7C4-11-13-5-15-23	F	T	T/F	F	X	X	X
10	1-2-3C1-3C2-4-5-6-7C4-7C5-11-13-5-15-23	F	T	T/F	T	F	X	X
11	1-2-3C1-3C2-4-5-6-7C4-7C5-7C6-11-13-5-15-23	F	T	T/F	T	T	F	X
12	1-2-3C1-4-5-6-7C4-7C5-7C6-8-13-5-15-23	F	T	T/F	T	T	T	X

Could replace paths 5, 6, 7, 8