

**UNIVERSITY OF CALIFORNIA, RIVERSIDE**  
**Department of Computer Science and Engineering**  
**CS61 – Machine Organization and Assembly Language**  
**Homework 3**

**Given August 27, Due August 30, 2001**

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1. Implement the following high-level CASE statement using LC-2 assembly code. Do not use self-modifying code as shown in class. (6)

```
while (true){
    cout << "Enter a number? "
    cin >> R1;
    select (R1){
    case 0:
        cout << "This is case 0" << endl;
        break;
    case 1:
        cout << "This is case 1" << endl;
        break;
    case 2:
        cout << "This is case 2" << endl;
        break;
    }
}
```

2. In the Tic-Tac-Toe game, we need to check for three adjacent X's to determine if player X has won. Write a subroutine to perform this check. The subroutine returns with the "P" (positive) flag set if X has won, and reset otherwise. The 3x3 Tic-Tac-Toe board is stored in 9 consecutive memory locations as define by the statement and picture

Board .BLKW        9, x0000

location 0	location 1	location 2
location 3	location 4	location 5
location 6	location 7	location 8

The contents of these locations are defined as follows:

0 = empty

1 = X in location

-1 = O in location

(6)