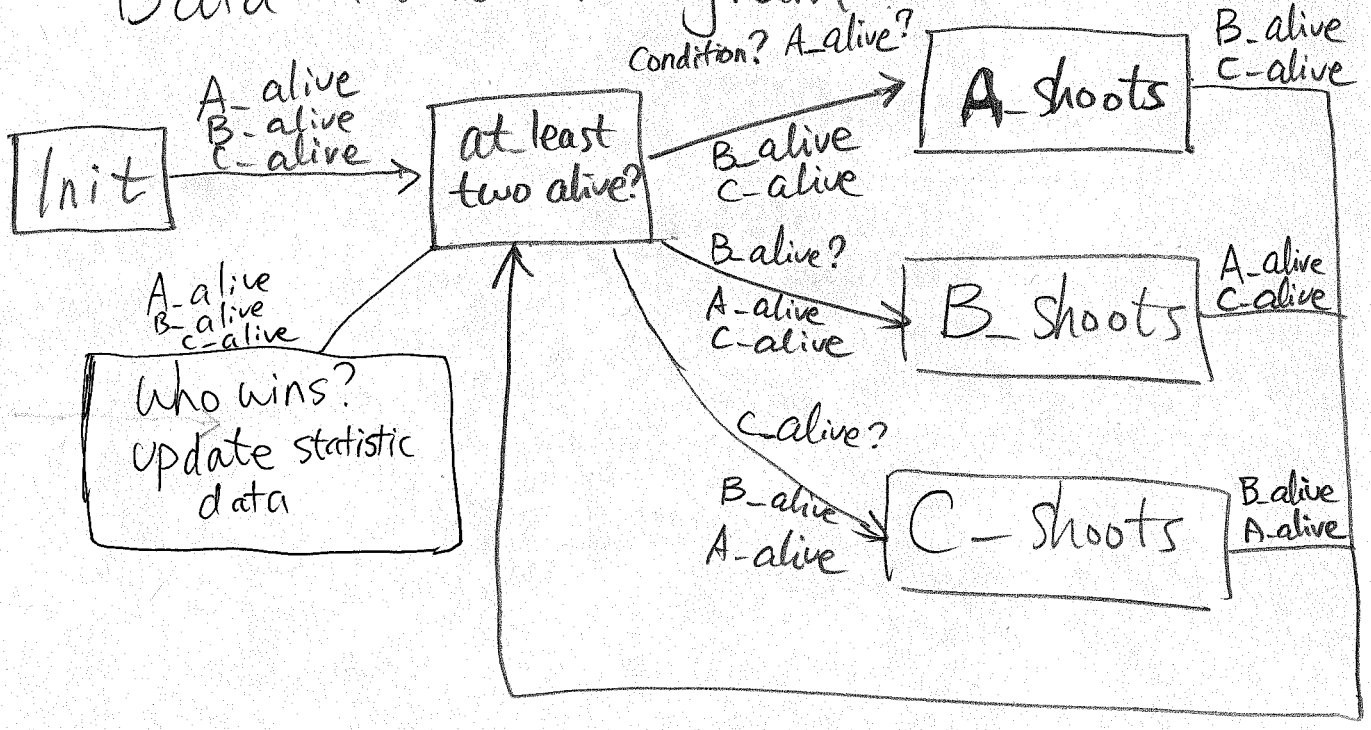
HW3

Data Flow Diagram



Now what is the algorithm ?

HW 3 Algorithm

A_win }
B_win } = 0
C_win }

init rand generator;

for (i = 0 ; i < 10,000 ; i++) {

A_alive, B_alive, C_alive ← true;

while (at_least_two_alive) {

if (A_alive)
A_shoots ;

if (B_alive)
B_shoots ;

if (C_alive) ;
C_shoots ;

}

if (A_alive)
A_win ++ ;

if (B_alive)
B_win ++ ;

if (C_alive)
C_win++ ;

} /* end for */

print report

- How to implement at_least_two_alive ?

```
bool at_least_two_alive(A_alive, B_alive, C_alive)
    if (A_alive && (!B_alive) && (!C_alive))
        return false
    if ((!A_alive) && B_alive && (!C_alive))
        return false
    if ((!A_alive) && (!B_alive) && (C_alive))
        return false
```

- How about ?

```
    (!A_alive) && (!B_alive) && (!C_alive)
    ?

    return true;
}
```

☆ Better Solution

```
if ((A_alive && B_alive) or
    (A_alive && C_alive) or
    (B_alive && C_alive))
    return true
else return false
```

```
A_shoots(B_alive, C_alive) { P4
perfa shootPoint = Rand()%100;
if (C_alive) {
    if (shootPoint > 67) { /* <33 */
        print (C killed);
        C_alive = false
    }
else if {
    if (B_alive) {
        if (shootPoint >67) {
            print
            B_alive
        } /*end if */
    } /*end if }
} /*end else */

}
```