Programming Assignment 2

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1. Thirsty Threads

```
/* a[0] for water, a[1] for ice, a[2] for cup */
semaphore a[3] = 0;
semaphore server = 1;
Server(void) {
    int i,j;
    While(TRUE){
        i = random(3); /* returns a random integer 0, 1 or 2 for i */
        j = random(3); /* returns a random integer 0, 1 or 2 for j */
        if (i != j) { /* i and j must be different */
            Wait(server);
            k = 3 - (i+j); /*the drinker with the k-th ingredient
                                  is identified*/
            Signal(a[k]);
        }
    }//end of while
}//end of Server

Drinker(int r) {
    /* r indicates which ingredients this drinker has */
    While(TRUE){
        Wait(a[i]);
        Drink( );
        Signal(server);
    }
}//end of Drinker
```

2. RR