

# Prvi kolokvijum iz Operativnih sistema 1

## Odsek za softversko inženjerstvo

### Mart 2017.

#### 1. (10 poena)

```
void performIO () {
    while (ioHead!=0) {

        IORequest* ioPending = ioHead; // Take the first request,
        ioHead = ioHead->next; // remove it from the list,
        if (ioHead==0) ioTail = 0;

        *ioCtrl = START_SENDING; // and send it to I/O
        for (int i=0; i<BLOCK_SIZE; i++)
            *ioData = ioPending->buffer[i];
        *ioCtrl = END_SENDING;

        while (*ioStatus&1 == 0); // Wait for completion

        if (*ioStatus&2) // Error in I/O
            ioPending->status = -1;
        else
            ioPending->status = 0;
    }
}

void transfer (IORequest* req) {
    req->next = 0;
    if (!ioHead) {
        ioHead = ioTail = req;
        performIO();
    } else
        ioTail = ioTail->next = req;
}
```

#### 2. (10 poena)

```
dispatch:    ; Save the current context
            push r0    ; save regs
            push r1
            ...
            push r31
            load r0, running
            store ssp, #offsSSP[r0] ; save ssp

            ; Select the next running process
            call scheduler

            ; Restore the new context
            load r0, running
            load ssp, #offsSSP[r0] ; restore ssp
            pop r31
            pop r30 ; restore regs
            ...
            pop r0
            ; Return
            iret
```

### 3. (10 poena)

```
#include <stdio.h>
const int N = ..., M = ...;
FILE* streams[N];
char text[N][M];

void read_line (void* ptr) {
    int i = (FILE**)ptr-streams;
    FILE* stream = streams[i];

    char c = getc(stream);
    int j = 0;
    while ((c!=EOF) && (j<M)) {
        text[i][j] = c;
        j++;
        c = getc(stream);
    }

    if (j<M)
        text[i][j] = '\\0';
    else
        text[i][M-1] = '\\0';
}

void read_text () {
    int i;
    for (i=0; i<N; i++) {
        text[i][0] = '\\0';
        thread_create(read_line,&streams[i]);
    }

    wait(0);

    for (i=0; i<N; i++)
        printf("%s\\n",text[i]);
}
```