

Introduction to Digital Computers - Spring 2004

Assignment No. 9

Course homepage: <http://hyde.eng.tau.ac.il/Digital.Computers04/>

Firm Deadline: June 8th - before the beginning of the lecture

Write DLX instructions for the following program segments. Check your answers with a DLX simulator (link appears in course homepage).

1. Suppose that f, g, h, i, j are variables that correspond to registers 16-20.

```
if (i == j) goto L1;
f = g + h;
L1: f = f - i;
```

2. Suppose that f, g, h, i, j are variables that correspond to registers 16-20.

```
if (i == j) f = g + h; else f = g - h;
```

3. Assume that A is an array of 100 elements (size of each element is a word) and that the compiler associates variables g, h, i, j to registers 17 – 20. Suppose that the array A starts at address $Astart$.

```
LOOP: g = g+A[i];
i = i+j;
if (i !=h) goto LOOP;
```

4. Assume that variables i, j correspond to registers 19 – 20, and that the array $save$ starts at address $Sstart$.

```
while (save[i]==save[j-i])
i = i + 1;
```

5. Assume that variables f, g, h, i, j, k correspond to registers 16 – 21.

```
switch (k) {
  case 0: f = i + j; break;
  case 1: f = g + h; break;
  case 2: f = g - h; break;
  case 3: f = i - j; break;
}
```