

Assignment6

2.

(a)

Suppose the value of l_i and h_i are given by the following table:

	WEEK1	WEEK2
l	1	2
h	30	4

During the iteration, since $h_2 > l_1 + l_2$, then the algorithm will output

```
1 "Choose no job in week 1"
2 "Choose a high-stress job in week 2"
```

And the value of this plan would be 4, which is not the best choice

However, the maximum answer will be

```
1 "Choose a high-stress job in week 1"
2 "Choose a low-stress job in week 2"
```

And the maximum of this plan is $30 + 2 = 32$

(b)

Since the best solution for week1 is to select is just to select the maximum value of l_1 and h_1 , since it's not worth skipping all jobs, there are not need for a prep time.

As for the other week $i > 1$

- If it selects a low-stress job l_i , it can behave optimally up to week $i - 1$

- If it selects a high-stress job h_i , it can behave optimally up to week $i - 2$

The pseudocode are as follows:

```

1  record all the low-stress job l[] high-stress job h[]
2  FindMaxValue(i){
3      if(i == 1){
4          return Max(l[1],h[1]);
5      }else{
6          return Max(l[i] + FindMaxValue(i-1), h[i] +
FindMaxValue(i-2));
7      }
8  }

```

And the total time complexity of this algorithm is $O(n)$