# Max Profit Problem

Mr. X owns a large strip of land in Las Vegas. For the purposes of this problem assume that he has infinite land capacity. On each parcel of he can choose to develop it as per his wishes. He can build either hotels, casinos or apartment complexes. Apartment complexes have 6 apartments. A hotel takes 5 units of time to build and covers 2x1 parcel of land. A casino takes 4 units of time to develop and covers 1x1 parcel of land. An apartment complex takes 10 units of time to build and covers 3x1 parcel of land. Each period of time that a building is operational it earns him money. A hotel earns hi, $1500, Casino $1000 and apartment complex $3000 in one period of time. He cannot have two properties being developed in parallel in one unit of time. After n units of time where n is the input, he earns money based on which properties have been developed. The job is to come up with the right mix of properties based on the period of time given as input. The output should be H for hotel followed by number, C for casinos followed by number and A for apartment followed by number developed.

**Test Case 1**

Time Unit: 7
Earnings: $3000

Solutions
1. 1.C: 1 H: 0 A: 0
2. 2.C: 0 H: 1 A: 0

**Test Case 2**

Time Unit: 8
Earnings: $4500
Solutions
1. C: 0 H: 1 A: 0

**Test Case 3**

Time Unit: 13
Earnings: $16500
Solutions
1. C: 0 H: 2 A: 0