

**CENG 461: Artificial Intelligence**  
**Homework #2**  
**Viterbi Algorithm**

**DUE DATE: 17.01.2018 - 23:55**

Consider the HMM given by the following Python code:

```
states = ('Rainy', 'Sunny')
observations = ('walk', 'walk', 'shop', 'walk', 'clean', 'clean', 'walk' )
start_probability = {'Rainy': 0.6, 'Sunny': 0.4}
transition_probability = {
    'Rainy' : {'Rainy': 0.7, 'Sunny': 0.3},
    'Sunny' : {'Rainy': 0.4, 'Sunny': 0.6}}
emission_probability = {
    'Rainy' : {'walk': 0.1, 'shop': 0.4, 'clean': 0.5},
    'Sunny' : {'walk': 0.6, 'shop': 0.3, 'clean': 0.1}}
```

Implement the Viterbi Algorithm and determine the most likely state sequence for the observation sequence using your implementation.

You should submit your assignment as **CENG461\_StdID1\_StdID2\_HW2.py** via CMS.