

Policy Iteration, Value Iteration Project Report

Policy Iteration

```
{'0': -6.681293858286695, '1': -9.189685956773786, '2':  
-11.096623262648613}
```

```
{'0': {'r': 1, 'l': 0}, '1': {'r': 0, 'l': 1}, '2': {'r': 1, 'l': 0}}
```

Policy Iteration always converge to this state value and policy regardless of initial state values

Value Iteration

```
{'0': -46.579105626710685, '1': -48.067339802525886, '2':  
-48.48833425610976}
```

```
{'0': {'r': 1, 'l': 0}, '1': {'r': 0, 'l': 1}, '2': {'r': 1, 'l': 0}}
```

Value iteration do not always converge to this state value and policy due to greedy policy improvement. The function only update policy if action with value greater than state value exist. If initial state values are too high, the algo will not update policies.

In this experiment, initial state values are set around -50, the policy will always converge.