CS3613 Assignment 3 – Markov Decision Processes

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Exercise 01

State	Expected utility for taking each action					Best Action	Expected Utility for Best Action	Updated Utility
	North	East	South	West	Nothing			
1	0	0	0	0	0	Nothing	0	-0.1
2	0	0	0	0	0	Nothing	0	-0.1
3						Nothing	0	1
4	0	0	0	0	0	Nothing	0	-0.1
5	0	0	0	0	0	Nothing	0	-0.1
6	0	0	0	0	0	Nothing	0	-0.05

1	-0.1	-0.1	-0.1	-0.1	-0.1	Nothing	-0.0999	-0.1999
2	-0.045	0.89	-0.045	-0.1	-0.1	East	0.8991	0.7891
3						Nothing		1
4	-0.1	-0.1	-0.1	-0.1	-0.1	Nothing	-0.0999	-0.1999
5	-0.0975	-0.055	-0.0975	-0.1	-0.1	East	-0.0549	-0.1549
6	-0.0525	0.0025	0.8925	-0.0425	-0.05	South	0.8916	0.8416

1	-0.1504	0.6902	-0.1504	-0.1999	-0.1999	East	0.6895	0.5895
2	-0.0994	0.9317	0.7502	-0.1482	0.7891	East	0.9308	0.8308
3						Nothing		1
4	-0.1977	-0.1594	-0.1977	-0.1999	-0.1999	East	-0.1593	-0.2593
5	-0.1074	0.7892	0.7423	-0.1482	-0.1549	East	0.7884	0.6884
6	0.7918	0.8495	0.9343	-0.0474	0.8416	South	0.9334	0.8834

Exercise 02

4 EAST	5 EAST	6 SOUTH
1 EAST	2 EAST	3 NOTHING

Exercise 03

- Code is uploaded as a separate file.

What is the best policy at the end?

Policy at convergence is as mentioned in Exercise 02.

On what iteration does the policy converge?

3rd iteration

How many iterations does it take the utilities to converge?

13th iteration