CSSE 413: Worksheet for evaluation a policy of a state
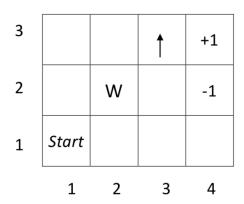
Please evaluate the policy of state <3,3>, given the following value matrix and using 0.9 for γ.

3			↑	+1
2		W		-1
1	Start			
	1	2	3	4

Here is the formula for calculating utility: $U_i(s) = R(s) + \gamma \sum_{s'} P(s' \mid s, \pi_i(s)) U_i(s')$

Utility of <3,3>:_____

Now, determine the new policy for state <3,3>. Here is the expression for determining a policy. Please show your work.

if $\max_{a \in A(s)} \sum_{s'} P(s' \mid s, a) U[s'] > \sum P(s' \mid s, \pi[s]) U[s']$

then $\pi[s] := \underset{a \in A(s)}{\text{argmax}} \sum_{s'} P(s' \mid s, a) U[s']$