/////Easy Grid World Analysis/////

This is your grid world:

[0,0,0,0,0]

[0,1,1,0,0]

[0,0,1,0,0]

[0,0,0,1,0]

[0,0,0,0,0]

//Value Iteration Analysis//

Passes: 1

Passes: 2

Passes: 3

Passes: 4

Passes: 5

Passes: 6

Passes: 7

Passes: 8

Passes: 9

Passes: 10

Passes: 11

Passes: 12

Passes: 13

Passes: 14

Passes: 15

Passes: 16

Passes: 17

Passes: 18

Passes: 19

Passes: 20

Passes: 21

Passes: 22

Passes: 23

Passes: 24

Passes: 25

Passes: 26

Passes: 27

Passes: 28

Passes: 29

Passes: 30

Passes: 31

Passes: 32

Passes: 33

Passes: 34

Passes: 35

Passes: 36

Passes: 37

Passes: 38

Passes: 39

Passes: 40

Passes: 41

Passes: 42

Passes: 43

Passes: 44

Passes: 45

Passes: 46

Passes: 47

Passes: 48

Passes: 49

Passes: 50

Passes: 51

Passes: 52

Passes: 53

Passes: 54

Passes: 55

Passes: 56

Passes: 57

Passes: 58

Passes: 59

Passes: 60

Passes: 61

Passes: 62

Passes: 63

Passes: 64

Passes: 65

Passes: 66

Passes: 67

Passes: 68

Passes: 69

Passes: 70

Passes: 71

Passes: 72

Passes: 73

Passes: 74

Passes: 75

Passes: 76

Passes: 77

Passes: 78

Passes: 79

Passes: 80

Passes: 81

Passes: 82

Passes: 83

Passes: 84

Passes: 85

Passes: 86

Passes: 87

Passes: 88

Passes: 89

Passes: 90

Passes: 91

Passes: 92

Passes: 93

Passes: 94

Passes: 95

Passes: 96

Passes: 97

Passes: 98

Passes: 99

Passes: 100

Value Iteration,496,768,10,15,9,16,10,13,15,10,9,10,9,11,12,11,14,11,9,10,10,10,14,11,9,10,10,9,9,12,10,9,12,9,10,9,12,11,12,9,9,13,11,15,10,14,10,12,9,12,9,10,14,9,10,9,11,9,10,11,9,12,13,15,10,13,12,15,9,16,12,11,13,11,17,10,15,11,9,9,10,13,16,9,11,10,11,14,11,11,10,12,9,15,12,9,11,10,9,9

This is your optimal policy:

num of rows in policy is 5

[>,>,>,>,>]

[^,\*,\*,^,^]

[^,<,\*,^,^]

[^,^,v,\*,^]

[^,>,>,>,^]

Num generated: 288; num unique: 21

//Policy Iteration Analysis//

Total policy iterations: 1

Total policy iterations: 2

Total policy iterations: 3

Total policy iterations: 4

Total policy iterations: 5

Total policy iterations: 6

Total policy iterations: 7

Total policy iterations: 8

Total policy iterations: 9

Total policy iterations: 10

Total policy iterations: 11

Total policy iterations: 12

Total policy iterations: 13

Total policy iterations: 14

Total policy iterations: 15

Total policy iterations: 16

Total policy iterations: 17

Total policy iterations: 18

Total policy iterations: 19

Total policy iterations: 20

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Total policy iterations: 22

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Total policy iterations: 75

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Total policy iterations: 77

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Total policy iterations: 81

Total policy iterations: 82

Total policy iterations: 83

Total policy iterations: 84

Total policy iterations: 85

Total policy iterations: 86

Total policy iterations: 87

Total policy iterations: 88

Total policy iterations: 89

Total policy iterations: 90

Total policy iterations: 91

Total policy iterations: 92

Total policy iterations: 93

Total policy iterations: 94

Total policy iterations: 95

Total policy iterations: 96

Total policy iterations: 97

Total policy iterations: 98

Total policy iterations: 99

Total policy iterations: 100

Policy Iteration,276,27,12,10,9,9,12,12,11,13,18,12,9,11,17,9,12,17,13,16,10,10,10,13,11,10,9,13,11,13,11,9,10,14,12,12,13,16,11,13,12,13,10,10,9,13,11,13,11,10,11,11,19,21,9,9,11,10,10,12,9,13,12,11,11,14,14,11,9,13,11,10,11,9,11,9,14,9,15,10,10,13,17,13,10,12,11,10,9,14,12,15,10,10,13,10,11,9,11,10

Passes: 12

This is your optimal policy:

num of rows in policy is 5

[>,>,>,>,^]

[^,\*,\*,^,^]

[^,<,\*,^,^]

[^,^,v,\*,^]

[^,>,>,>,^]

//Q Learning Analysis//

Q Learning,123,108,26,63,71,93,17,31,25,13,11,11,112,15,63,10,20,27,13,26,17,13,23,16,16,24,99,20,34,13,13,25,18,41,18,71,15,9,9,69,26,16,19,13,14,20,11,11,11,30,13,51,44,20,19,16,12,38,16,11,65,14,15,57,11,18,22,25,9,18,27,13,33,26,11,38,12,23,165,14,14,16,84,11,17,16,26,39,27,12,15,59,41,21,25,66,12,23,20,19

Passes: 12

This is your optimal policy:

num of rows in policy is 5

[>,>,>,>,>]

[^,\*,\*,^,^]

[^,<,\*,^,^]

[^,^,v,\*,^]

[>,^,>,>,^]

//Aggregate Analysis//

The data below shows the number of steps/actions the agent required to reach

the terminal state given the number of iterations the algorithm was run.

Iterations,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100

Value Iteration,496,768,10,15,9,16,10,13,15,10,9,10,9,11,12,11,14,11,9,10,10,10,14,11,9,10,10,9,9,12,10,9,12,9,10,9,12,11,12,9,9,13,11,15,10,14,10,12,9,12,9,10,14,9,10,9,11,9,10,11,9,12,13,15,10,13,12,15,9,16,12,11,13,11,17,10,15,11,9,9,10,13,16,9,11,10,11,14,11,11,10,12,9,15,12,9,11,10,9,9

Policy Iteration,276,27,12,10,9,9,12,12,11,13,18,12,9,11,17,9,12,17,13,16,10,10,10,13,11,10,9,13,11,13,11,9,10,14,12,12,13,16,11,13,12,13,10,10,9,13,11,13,11,10,11,11,19,21,9,9,11,10,10,12,9,13,12,11,11,14,14,11,9,13,11,10,11,9,11,9,14,9,15,10,10,13,17,13,10,12,11,10,9,14,12,15,10,10,13,10,11,9,11,10

Q Learning,123,108,26,63,71,93,17,31,25,13,11,11,112,15,63,10,20,27,13,26,17,13,23,16,16,24,99,20,34,13,13,25,18,41,18,71,15,9,9,69,26,16,19,13,14,20,11,11,11,30,13,51,44,20,19,16,12,38,16,11,65,14,15,57,11,18,22,25,9,18,27,13,33,26,11,38,12,23,165,14,14,16,84,11,17,16,26,39,27,12,15,59,41,21,25,66,12,23,20,19

The data below shows the number of milliseconds the algorithm required to generate

the optimal policy given the number of iterations the algorithm was run.

Iterations,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100

Value Iteration,86,13,5,5,6,4,7,5,16,14,9,9,10,10,13,52,22,14,39,18,17,27,28,12,16,16,25,61,66,47,19,21,29,19,20,32,16,29,21,23,27,15,29,43,17,59,44,52,10,10,13,9,12,18,17,14,13,15,12,13,15,18,15,33,27,70,66,100,131,93,75,82,59,51,26,25,37,32,122,31,89,52,28,31,35,31,25,25,24,25,55,38,36,28,31,33,45,188,52,56

Policy Iteration,64,4,11,23,16,47,17,17,29,102,18,30,36,77,103,43,25,59,23,17,26,28,23,55,55,30,28,24,24,38,27,61,33,43,74,38,89,117,61,35,51,34,32,29,29,32,26,46,89,95,33,136,90,54,113,88,57,94,40,29,40,44,46,50,117,163,111,89,46,126,43,39,37,42,33,31,32,35,34,43,62,47,52,84,73,36,46,49,45,41,40,46,49,62,67,45,50,47,46,60

Q Learning,16,2,3,1,1,3,2,2,4,24,8,5,43,2,2,4,3,4,6,7,4,8,6,5,6,3,7,3,7,7,6,7,5,4,7,4,6,7,8,4,9,6,4,7,4,5,3,6,4,17,7,10,10,8,7,6,9,8,9,6,7,11,11,13,10,11,8,9,10,24,11,8,10,10,11,10,41,14,10,14,11,9,13,10,6,6,5,9,5,5,6,7,10,6,6,7,10,7,5,7