Phil Bell
08

Screen Y   80 Columns

Screen X

24 Rows

MAP X

MAP Y

0	Empty		
1	N/A		
2	Dot		
3	Super Dot		
4	N/A		
5	Tunnel		
6	Left Tunnel Exit		
7	Right Tunnel Exit		
8	No up turn for ghosts		
9	N/A		
10	Wall		
11	Outside Maze		
12	Ghost House		

Ghost House Positions

	X	Y	D
	13	8	8
	14	9	1
	15	9	1
	16	9	1

1UP   HIGH SCORE
00

Each cell stores a single value that determins the available directions
that the player or ghosts can move

	0	1	2	3	4	5	6	7	8	9
0										
1			6	2	2	2	2	14	2	2
2			5					5		
3			5					5		
4			7	2	2	2	2	15	2	2
5			5					5		
6			3	2	2	2	2	13		
7								5		
8								5		

Value	Direction
1	Up
2	Right
4	Down
8	Left

If a cell holds a value of 1 then only the upward direction is possible

Multiple directions are stored by added the directions togother

A cell with value 10 means left and right directions are possible

15 means all directions

This array is generated using the maz map tile data and used
within the program player and ghost move routines

We can use the logical AND operator to test a graph value with a direction to see if it is valid

	0	1	2	3	4	5	6	7	8
0									
1		T			C2				
2				C1	S	C4			
3					C3				
4									
5									
6									
7									
8									

		TX	TY	SX	SY		X2	Y2	D2
S = (4, 2)	C								
Left of S	1	1	1	3	2		2	1	5
Up of S	2	1	1	4	1		3	0	9
Down of S	3	1	1	4	3		3	2	13
Right of S	4	1	1	5	2		4	1	17
		0	21	3	17		3	4	25
		0	0	8	0		8	0	64
		-3	7	1	2		4	5	41

Shortest Distance To T is C1 so S should move to C1 (3, 2)

Calculate the positive difference between the y-coordinates and call this number Y.

The y-coordinates are the second numbers in each set of coordinates.

For example, if the two points have coordinates (-3, 7) and (1, 2), then the difference between 7 and 2 is 5, and so Y = 5.

Use the formula D2 = X2 + Y2 to find the squared distance between two points.

For example, if X = 4 and Y = 5, then D2 = 42 + 52 = 41. Thus, the square of the distance between the coordinates is 41.

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Cells Per Second	Speed	Time Per Frame	Speed %		Time Per Frame
100%	100%	Time Per Frame	80	80	Time Per Frame
1	1	0.01666666667	0.8	1.25	0.02083333333
1.15	0.8695652174	0.01449275362	0.92	1.086956522	0.01811594203
1.2	0.8333333333	0.01388888889	0.96	1.041666667	0.01736111111
1.25	0.8	0.01333333333	1	1	0.01666666667
1.3	0.7692307692	0.01282051282	1.04	0.9615384615	0.01602564103
1.35	0.7407407407	0.01234567901	1.08	0.9259259259	0.01543209877
1.4	0.7142857143	0.0119047619	1.12	0.8928571429	0.01488095238
1.45	0.6896551724	0.01149425287	1.16	0.8620689655	0.01436781609
1.5	0.6666666667	0.01111111111	1.2	0.8333333333	0.01388888889
1.55	0.6451612903	0.01075268817	1.24	0.8064516129	0.01344086022
1.6	0.625	0.01041666667	1.28	0.78125	0.01302083333
1.65	0.6060606061	0.0101010101	1.32	0.7575757576	0.01262626263
1.7	0.5882352941	0.009803921569	1.36	0.7352941176	0.01225490196
1.75	0.5714285714	0.009523809524	1.4	0.7142857143	0.0119047619
1.8	0.5555555556	0.009259259259	1.44	0.6944444444	0.01157407407
1.85	0.5405405405	0.009009009009	1.48	0.6756756757	0.01126126126
1.9	0.5263157895	0.008771929825	1.52	0.6578947368	0.01096491228
1.95	0.5128205128	0.008547008547	1.56	0.641025641	0.01068376068
2	0.5	0.008333333333	1.6	0.625	0.01041666667
2.05	0.487804878	0.008130081301	1.64	0.6097560976	0.01016260163
2.1	0.4761904762	0.007936507937	1.68	0.5952380952	0.009920634921
2.15	0.4651162791	0.007751937984	1.72	0.5813953488	0.009689922481
2.2	0.4545454545	0.007575757576	1.76	0.5681818182	0.00946969697
2.25	0.4444444444	0.007407407407	1.8	0.5555555556	0.009259259259
2.3	0.4347826087	0.007246376812	1.84	0.5434782609	0.009057971014
2.35	0.4255319149	0.007092198582	1.88	0.5319148936	0.008865248227
2.4	0.4166666667	0.006944444444	1.92	0.5208333333	0.008680555556
2.45	0.4081632653	0.006802721088	1.96	0.5102040816	0.008503401361
2.5	0.4	0.006666666667	2	0.5	0.008333333333
2.55	0.3921568627	0.006535947712	2.04	0.4901960784	0.008169934641
2.6	0.3846153846	0.00641025641	2.08	0.4807692308	0.008012820513
2.65	0.3773584906	0.006289308176	2.12	0.4716981132	0.00786163522
2.7	0.3703703704	0.006172839506	2.16	0.462962963	0.007716049383
2.75	0.3636363636	0.006060606061	2.2	0.4545454545	0.007575757576
2.8	0.3571428571	0.005952380952	2.24	0.4464285714	0.00744047619
2.85	0.350877193	0.005847953216	2.28	0.4385964912	0.00730994152
2.9	0.3448275862	0.005747126437	2.32	0.4310344828	0.007183908046
2.95	0.3389830508	0.005649717514	2.36	0.4237288136	0.007062146893
3	0.3333333333	0.005555555556	2.4	0.4166666667	0.006944444444

	PAC-MAN SPEED				GHOST SPEED		
LEVEL	NORM	NORM DOTS	FRIGHT	FRIGHT DOTS	NORM	FRIGHT	TUNNEL
1	80%	71%	90%	79%	75%	50%	40%
2 - 4	90%	79%	95%	83%	85%	55%	45%
5 - 20	100%	87%	100%	87%	95%	60%	50%
21+	90%	79%	N/A	N/A	95%	N/A	50%

Phases

	Mode	Level 1	Levels 2-4	Levels 5+
1	Scatter	7	7	5
2	Chase	20	20	20
3	Scatter	7	7	5
4	Chase	20	20	20
5	Scatter	5	5	5
6	Chase	20	1033	1037
7	Scatter	5	1/60	1/60
8	Chase	indefinite	indefinite	indefinite

Level	Bonus	Points	ASCII
1	Cherries	100	C
2	Strawberry	300	S
3	Peach 1	500	P
4	Peach 2	500	P
5	Apple 1	700	A
6	Apple 2	700	A
7	Grapes 1	1000	R
8	Grapes 2	1000	R
9	Galaxian 1	2000	G
10	Galaxian 2	2000	G
11	Bell 1	3000	B
12	Bell 2	3000	B
13+	Key 1	5000	K

Fruit is 2 per level, First after 70 dots second after 170
Fruit appers under the ghost house

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2 - 4	90%	79%	95%	83%	85%	55%	45%
5 - 20	100%	87%	100%	87%	95%	60%	50%
21+	90%	79%	N/A	N/A	95%	N/A	50%

	Mode	Level 1	Levels 2-4	Levels 5+