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CSCI 141
HW 12

Work travels around table like this: (□↗)

Problem 1

Index	Key	Value
0		
1	latvia	
2	afghanistan	
3	canada	
4	mongolia	
5	myanmar	
6		
7	newzealand	
8	ecuador	
9	papuanewguinea	

afghanistan
1 + 7 + 1 + 9 + 20 + 14
= 52 hash(afghanistan) = 2

latvia
12 + 20 + 9 = 41
hash(latvia) = 1
0 collisions

myanmar
13 1 13 18 = 45
hash(myanmar) = 5
0 collisions

canada
3 + 14 + 4 = 21
hash(canada) = 1
2 collisions → 3

papuanewguinea
16 + 16 + 1 + 5 + 7 + 9 + 5 = 59
hash(papuanewguinea) = 9
0 collisions

ecuador
5 + 21 + 4 + 18 = 48
h(ecuador) = 8
0 collisions

mongolia
13 14 15 9 = 51
h(mongolia) = 1
3 collisions → 4

Total: 5 collisions

newzealand
14 22 5 12 14
= 67
h(newzealand) = 7
0 collisions

Problem 2

Index	key
0	CI(mongolia)
1	CI(latvia)
2	
3	CI(Afghanistan)
4	CI(myanmar)
5	CI(canada)
6	
7	CI(ecuador)
8	
9	

Afghanistan

1+7+1+9+20+14 = 52

52 + (37·3)

52 + 111 = 163

h(CountryInfo(Afghanistan)) = 3

0 collisions

Latvia

12+20+9 = 41

41 + (2·5) = 51

h(CI(latvia)) = 1

0 collisions

Myanmar

13+1+13+18 = 45

45 + (53·3)

45 + 159 = 204

h(CI(myanmar)) = 4

0 collisions

Canada

3+14+4 = 21

21 + (37·6)

21 + 222 = 243

h(CI(canada)) = 3 → 2 collisions → 5

Ecuador

5+21+4+18 = 48

48 + (17·7)

48 + 119 = 167

h(CI(ecuador)) = 7

0 collisions

Mongolia

13+14+15+9 = 51

51 + (3·3) = 60

h(CI(mongolia)) = 0

0 collisions

2 TOTAL COLLISIONS

Problem 3

Afghanistan
h(Afghanistan) = 3
0 collisions

Latvia
h(Latvia) = 3
1 collision → 4

Myanmar
h(myanmar) = 3
2 collisions → 5

Canada
h(canada) = 3
3 collisions → 6

Papuanewguinea
h(Papuanewguinea) = 3
4 collisions → 7

Ecuador
h(ecuador) = 3
5 collisions → 0

Mongolia
h(mongolia) = 3
6 collisions → 1

Newzealand
h(newzealand) = 3
7 collisions → 2

28 TOTAL COLLISIONS

Index	key
0	Ecuador
1	Mongolia
2	Newzealand
3	Afghanistan
4	Latvia
5	Myanmar
6	Canada
7	Papuanewguinea