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COLLEGE OF COMPUTER STUDIES AND TECHNOLOGY
Bachelor of Science in Information Technology
CC214 – Data Structures and Algorithm

Name: _____ Date: _____
Program/Year/Section: _____ Instructor: Mr. Bryan Q. Boongaling

Quiz 4 – Problem Solving 2!

Using Hash Algorithm, perform for the following Collision Resolution Scheme.
Solve for the Load Factor and the Hash Function; then complete the Hash Tables below. Show your solutions.

Fist Bump! XDD

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Given:

Hash Table Size = 15

A. Load Factor:

B. Hash Function:

ID No.	Key	Hash	Array Index	Array Index (After Linear Probing)	Array Index (After Quadratic Probing)
1	29	29%15	14	14	14
2	37	37%15	7	7	7
3	5	5%15	5	5	5
4	4	4%15	4	4	4
5	9	9%15	9	9	9
6	66	66%15	6	6	6
7	99	99%15	9	10	10
8	50	50%15	5	8	1
9	90	90%15	0	0	0
10	59	59%15	14	15	15

C. Hash Table:

1. Basic Hashing – Indicate / show where the Collisions are (Index)
2. Linear Probing
3. Quadratic Probing
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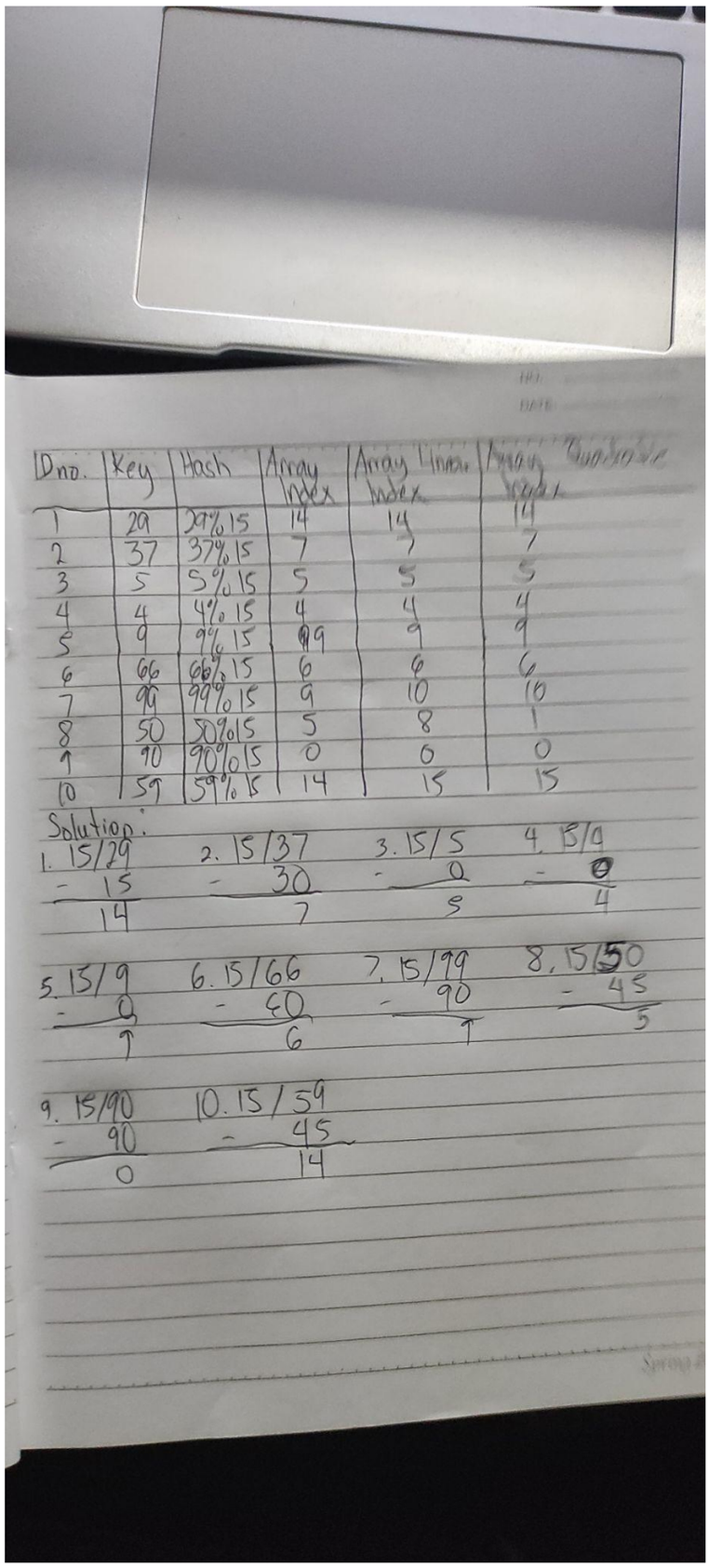
I. Evidence:



Dno.	Key	Hash	Array Index	Array Linear Index	Array Quadratic Index
1	29	29%15	14	14	14
2	37	37%15	7	7	7
3	5	5%15	5	5	5
4	4	4%15	4	4	4
5	9	9%15	9	9	9
6	66	66%15	6	6	6
7	99	99%15	9	10	10
8	50	50%15	5	8	1
9	90	90%15	0	0	0
10	59	59%15	14	15	15

Solution:

1. 15/29 — 15 — 14
2. 15/37 — 30 — 7
3. 15/5 — 0 — 5
4. 15/9 — 9 — 4
5. 15/9 — 9 — 0 — 1
6. 15/66 — 60 — 6
7. 15/99 — 90 — 9 — 1
8. 15/50 — 45 — 5
9. 15/90 — 90 — 0
10. 15/59 — 45 — 14

NO.
DATE:

Hash Table
Array Index

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
90				4	5	66	37	[illegible]	9					14	
					50				99					59	

Collision Index:
{5, 9, 14 3}

Array Index After Linear Probing

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
90				4	5	66	37	50	9	99				29	59

Collision Index: No Collision

Array Index After Quadratice Probing

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
90	50			4	5	66	37		9	99			[illegible]	29	59

Collision Index : No collision

Spring

II. Format:

- Word Processing Format
  - Paper Size: Long (8.5 x 13)
  - Font: Arial / 12
  - Alignment: Justify
  - Margin: Refer to this Document
  - Line Spacing: 1.5
- Handwritten Format
  - Paper Size: Long
  - Black Ink
  - Print Writing not Cursive Writing
  - Use Margin, Alignment, and Spacing Manually

III. Rubrics and Criteria:

● Compliance and Punctuality	5 Points
● Organization and Format	10 Points
● Quality of Work	20 Points
Total:	35 Points

IV. File Name:

- LastName_ActivityTypeandCode_Section
  Ex. Boongaling_Assignment1_BSIT1A

V. Submission:

- Attach via Google Classroom set by your Course Instructor