CALCUTTA INSTITUTE OF TECHNOLOGY
MASTER IN COMPUTER APPLICATION

CA-2
SEM-2

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TOPIC: DIFFERENCE BETWEEN LINEAR & QUADRIC PROBING

SUBJECT: DSA THROUGH PYTHON

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Difference between Liner probing and Quatic probing.

Introduction:

Hashing is a technique used for efficient data storage and retrieval.
When a collection occurs in a hash table are used to resolved it.
Linear probing and quadratic probing are two common method for hashing collision.

Liner probing:

A collition resolution method are the next available slot searching. The step size constant. if collision occur check next slot then next so on,

Advantages:-

1) Simple easy implement
2) Does not require extra memory.
3) works well small load factor,

Dis advantages:-

1) Suffer from primary clusting

2) Slower retrival

3) performance decreses.

Quadratic probing:

A collision resolution method where next slot found using quadratic formula step increase gradually $1^2, 2^2, 3^2, 4^2$. reduce primary clusting.

Advantages:-

1) reduce primary clusting

2) more efficient.

Scanned with OKEN Scanner

Disadvantage:-

1) can still cause secondary clustering

2) requires careful choice of table size.

3) more complex.

Comparison:-

Feature	Linear probing	Quadratic probing
step size	constant (1)	quadratic (n^2)
complexity	Simple	complex
clustering	Primary	secondary

Conclusion:-

Linear probing is simple but suffers from primary clustering. Quadratic probing reduces clustering but more complex. The best choice depends on load factor hash function in use case.