



DSA LAB

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Enroll. Number: GL3125

Course: B. Tech

Subject : COC2910

OUTPUT

```
za1d Cpp College Assignments $ ./a.out
```

```
Generating array of 40 random numbers.
```

```
Array Generated is
```

```
272 939 485 388 337 86 765 271 737 689 102 478 941 220 589 834 514 23 192 901 78 399 442 973 393 987 638 331 610 561 165 234 853 650 974 190 88 92 813 825
```

AFTER LINEAR PROBING INSERTION:

```
----- Insertion using Linear Probing -----
Key --> 272      Position --> 37 Probes ---> 1
Key --> 939      Position --> 46 Probes ---> 1
Key --> 485      Position --> 15 Probes ---> 1
Key --> 388      Position --> 12 Probes ---> 1
Key --> 337      Position -->  8 Probes ---> 1
Key -->  86      Position --> 39 Probes ---> 1
Key --> 765      Position --> 13 Probes ---> 1
Key --> 271      Position --> 36 Probes ---> 1
Key --> 737      Position --> 32 Probes ---> 1
Key --> 689      Position --> 31 Probes ---> 1
Key --> 102      Position -->  9 Probes ---> 2
Key --> 478      Position --> 10 Probes ---> 3
Key --> 941      Position -->  1 Probes ---> 1
Key --> 220      Position --> 33 Probes ---> 2
Key --> 589      Position --> 25 Probes ---> 1
Key --> 834      Position --> 35 Probes ---> 1
Key --> 514      Position --> 44 Probes ---> 1
Key -->  23      Position --> 23 Probes ---> 1
Key --> 192      Position -->  4 Probes ---> 1
Key --> 901      Position --> 11 Probes ---> 4
Key -->  78      Position --> 34 Probes ---> 4
Key --> 399      Position --> 24 Probes ---> 2
Key --> 442      Position --> 19 Probes ---> 1
Key --> 973      Position --> 38 Probes ---> 6
Key --> 393      Position --> 17 Probes ---> 1
Key --> 987      Position -->  0 Probes ---> 1
Key --> 638      Position --> 27 Probes ---> 1
Key --> 331      Position -->  2 Probes ---> 1
Key --> 610      Position --> 47 Probes ---> 2
Key --> 561      Position --> 45 Probes ---> 2
Key --> 165      Position --> 26 Probes ---> 3
Key --> 234      Position --> 48 Probes ---> 3
Key --> 853      Position -->  7 Probes ---> 1
Key --> 650      Position --> 40 Probes ---> 2
Key --> 974      Position --> 41 Probes ---> 8
Key --> 190      Position -->  3 Probes ---> 2
Key -->  88      Position --> 42 Probes ---> 2
Key -->  92      Position --> 49 Probes ---> 5
Key --> 813      Position --> 14 Probes ---> 1
Key --> 825      Position --> 28 Probes ---> 3
```

AFTER QUAD. PROBING INSERTION

Insertion using Qaudartc Probing

```
-----*****-----
Key --> 272    Position --> 37    Probes ---> 1
Key --> 939    Position --> 46    Probes ---> 1
Key --> 485    Position --> 15    Probes ---> 1
Key --> 388    Position --> 12    Probes ---> 1
Key --> 337    Position --> 8     Probes ---> 1
Key --> 86     Position --> 39    Probes ---> 1
Key --> 765    Position --> 13    Probes ---> 1
Key --> 271    Position --> 36    Probes ---> 1
Key --> 737    Position --> 32    Probes ---> 1
Key --> 689    Position --> 31    Probes ---> 1
Key --> 102    Position --> 9     Probes ---> 2
Key --> 478    Position --> 17    Probes ---> 4
Key --> 941    Position --> 1     Probes ---> 1
Key --> 220    Position --> 33    Probes ---> 2
Key --> 589    Position --> 25    Probes ---> 1
Key --> 834    Position --> 35    Probes ---> 1
Key --> 514    Position --> 44    Probes ---> 1
Key --> 23     Position --> 23    Probes ---> 1
Key --> 192    Position --> 4     Probes ---> 1
Key --> 901    Position --> 24    Probes ---> 5
Key --> 78     Position --> 40    Probes ---> 4
Key --> 399    Position --> 27    Probes ---> 3
Key --> 442    Position --> 19    Probes ---> 1
Key --> 973    Position --> 34    Probes ---> 2
Key --> 393    Position --> 18    Probes ---> 2
Key --> 987    Position --> 0     Probes ---> 1
Key --> 638    Position --> 28    Probes ---> 2
Key --> 331    Position --> 2     Probes ---> 1
Key --> 610    Position --> 47    Probes ---> 2
Key --> 561    Position --> 45    Probes ---> 2
Key --> 165    Position --> 49    Probes ---> 6
Key --> 234    Position --> 50    Probes ---> 3
Key --> 853    Position --> 7     Probes ---> 1
Key --> 650    Position --> 43    Probes ---> 3
Key --> 974    Position --> 38    Probes ---> 3
Key --> 190    Position --> 3     Probes ---> 2
Key --> 88     Position --> 41    Probes ---> 1
Key --> 92     Position --> 54    Probes ---> 4
Key --> 813    Position --> 14    Probes ---> 1
Key --> 825    Position --> 26    Probes ---> 1
```

AFTER DOUBLE HASHING INSERTION:

Insertion using Double hashing Probing				

Key -->	272	Position -->	37	Probes ---> 1
Key -->	939	Position -->	46	Probes ---> 1
Key -->	485	Position -->	15	Probes ---> 1
Key -->	388	Position -->	12	Probes ---> 1
Key -->	337	Position -->	8	Probes ---> 1
Key -->	86	Position -->	39	Probes ---> 1
Key -->	765	Position -->	13	Probes ---> 1
Key -->	271	Position -->	36	Probes ---> 1
Key -->	737	Position -->	32	Probes ---> 1
Key -->	689	Position -->	31	Probes ---> 1
Key -->	102	Position -->	11	Probes ---> 2
Key -->	478	Position -->	18	Probes ---> 3
Key -->	941	Position -->	1	Probes ---> 1
Key -->	220	Position -->	40	Probes ---> 3
Key -->	589	Position -->	25	Probes ---> 1
Key -->	834	Position -->	35	Probes ---> 1
Key -->	514	Position -->	44	Probes ---> 1
Key -->	23	Position -->	23	Probes ---> 1
Key -->	192	Position -->	4	Probes ---> 1
Key -->	901	Position -->	10	Probes ---> 2
Key -->	78	Position -->	43	Probes ---> 3
Key -->	399	Position -->	30	Probes ---> 2
Key -->	442	Position -->	19	Probes ---> 1
Key -->	973	Position -->	33	Probes ---> 1
Key -->	393	Position -->	17	Probes ---> 1
Key -->	987	Position -->	0	Probes ---> 1
Key -->	638	Position -->	27	Probes ---> 1
Key -->	331	Position -->	2	Probes ---> 1
Key -->	610	Position -->	52	Probes ---> 2
Key -->	561	Position -->	50	Probes ---> 2
Key -->	165	Position -->	24	Probes ---> 1
Key -->	234	Position -->	50	Probes ---> 2
Key -->	853	Position -->	7	Probes ---> 1
Key -->	650	Position -->	41	Probes ---> 3
Key -->	974	Position -->	34	Probes ---> 1
Key -->	190	Position -->	14	Probes ---> 3
Key -->	88	Position -->	47	Probes ---> 3
Key -->	92	Position -->	45	Probes ---> 1
Key -->	813	Position -->	20	Probes ---> 2
Key -->	825	Position -->	26	Probes ---> 1

Insertion using Chaining Method

```

-----
Key --> 272      Position --> [37][0]    Probes ---> 1
Key --> 939      Position --> [46][0]    Probes ---> 1
Key --> 485      Position --> [15][0]    Probes ---> 1
Key --> 388      Position --> [12][0]    Probes ---> 1
Key --> 337      Position --> [ 8][0]    Probes ---> 1
Key --> 86       Position --> [39][0]    Probes ---> 1
Key --> 765      Position --> [13][0]    Probes ---> 1
Key --> 271      Position --> [36][0]    Probes ---> 1
Key --> 737      Position --> [32][0]    Probes ---> 1
Key --> 689      Position --> [31][0]    Probes ---> 1
Key --> 102      Position --> [ 8][1]    Probes ---> 2
Key --> 478      Position --> [ 8][2]    Probes ---> 3
Key --> 941      Position --> [ 1][0]    Probes ---> 1
Key --> 220      Position --> [32][1]    Probes ---> 2
Key --> 589      Position --> [25][0]    Probes ---> 1
Key --> 834      Position --> [35][0]    Probes ---> 1
Key --> 514      Position --> [44][0]    Probes ---> 1
Key --> 23       Position --> [23][0]    Probes ---> 1
Key --> 192      Position --> [ 4][0]    Probes ---> 1
Key --> 901      Position --> [ 8][3]    Probes ---> 4
Key --> 78       Position --> [31][1]    Probes ---> 2
Key --> 399      Position --> [23][1]    Probes ---> 2
Key --> 442      Position --> [19][0]    Probes ---> 1
Key --> 973      Position --> [33][0]    Probes ---> 1
Key --> 393      Position --> [17][0]    Probes ---> 1
Key --> 987      Position --> [ 0][0]    Probes ---> 1
Key --> 638      Position --> [27][0]    Probes ---> 1
Key --> 331      Position --> [ 2][0]    Probes ---> 1
Key --> 610      Position --> [46][1]    Probes ---> 2
Key --> 561      Position --> [44][1]    Probes ---> 2
Key --> 165      Position --> [24][0]    Probes ---> 1
Key --> 234      Position --> [46][2]    Probes ---> 3
Key --> 853      Position --> [ 7][0]    Probes ---> 1
Key --> 650      Position --> [39][1]    Probes ---> 2
Key --> 974      Position --> [34][0]    Probes ---> 1
Key --> 190      Position --> [ 2][1]    Probes ---> 2
Key --> 88       Position --> [41][0]    Probes ---> 1
Key --> 92       Position --> [45][0]    Probes ---> 1
Key --> 813      Position --> [14][0]    Probes ---> 1
Key --> 825      Position --> [26][0]    Probes ---> 1

```

Enter a key to perform hashing operations :

813

Performing search to find 813 ...

Searching number 813 using Linear probing ...

Position --> 14 Probes --> 1

Searching number 813 using Quadratic probing ...

Position --> 14 Probes --> 1

Searching number 813 using Double hashing probing ...

Position --> 20 Probes --> 2

Searching number 813 using Chaining method ...

Position --> [14][0] Probes --> 1

Performing deletion to delete 813 from all tables ...

Searching number 813 using Linear probing ...

Position --> 14 Probes --> 1

Searching number 813 using Quadratic probing ...

Position --> 14 Probes --> 1

Searching number 813 using Double hashing probing ...

Position --> 20 Probes --> 2

Searching number 813 using Chaining method ...

Position --> [14][0] Probes --> 1

Performing deletion for the given number... DELETED ELEMENT FROM ALL THE TABLES ...

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