CSE 208

Offline 8 : Hashing

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B1

Report:

int hash1(string key)

```
{
    int hashCode = 0, p = 1;
    int len = key.length();
    for(int i  = 0; i < len; i++)
    {
       hashCode = (hashCode + (key[i] - 'a' + 1) * p) % m;
       p = (p * 31) % m;
    }
    return hashCode;
}
```

int hash2(string key)

```
{
    int len = key.length();
    int hashCode = 7;
    for (int i = 0; i < len; i++) {
       hashCode = (hashCode*31 + key[i]) % m;
    }
    return hashCode;
}
```

```
int auxHash(string key)
{
    int hashCode = 0;
    int len = key.length();
    int auxM = m - 1;
    for(int i = 0; i < len; i++)
    {
       hashCode = 1 + (hashCode + key[i]) % auxM;
    }
    return hashCode;
}
```

Input HashTable size, N = 10007

	Hash1		Hash2	
	No. of Collision	**Avg probes**	**No. of Collision**	**Avg probes**
Chaining Method	3686	1.449	3684	1.468
Double Hashing	56631	7.936	59908	6.388
Custom Probing	62293	6.007	63796	6.739

Input HashTable size, N = 20011

	Hash1		Hash2	
	No. of Collision	**Avg probes**	**No. of Collision**	**Avg probes**
Chaining Method	2133	1.233	2099	1.223
Double Hashing	3886	1.36	3717	1.362
Custom Probing	3859	1.412	3871	1.343

Input HashTable size, N = 30013

	Hash1		Hash2	
	No. of Collision	**Avg probes**	**No. of Collision**	**Avg probes**
Chaining Method	1437	1.165	1567	1.148
Double Hashing	2065	1.221	2303	1.214
Custom Probing	2136	1.183	2242	1.231