Report on Hash Table Offline

The task was to generate 10000 words and then store them in a Hash Table using two different hash functions. For this, I have used the following functions:

```
// 01
unsigned long hashFunction(char *str)
{
    unsigned long hash = 5381;
    int c;

    while (c = *str++)
        hash = ((hash << 5) + hash) + c; /* hash * 33 + c */

    return hash;
}
```

```
// 02
unsigned long hashFunction(char *str)
{
    unsigned long hash = 0;
    int c;

    while (c = *str++)
        hash = c + (hash << 6) + (hash << 16) - hash;

    return hash;
}
```

```
// aux
unsigned long auxHashFunction(char *str)
{
    unsigned long hash = 0x55555555;
```

```
    while (*str) {
        hash ^= *str++;
        hash = (hash << 5) | (hash >> (32 - 5));
    }

    return hash;
}
```

Now, the performance of these two functions (the third one is an auxiliary hash function used in double hashing and custom probing) for 3 different kinds of collision resolution could be found in the table below.

	Hash 01		Hash 02	
	# of collisions	average probes	# of collisions	average probes
Chaining Method	1553	9.262	1627	9.416
Double Hashing	76481	8.745	71876	7.978
Custom Probing	75954	8.208	77662	7.499