**Section 1, Task A:**

**Hash Tables**

A hash table is a type of data structure that employs key-value pairs. The key is a handle that is unique to each element (like a primary key in a database). A method to Add/Insert always requires the (key,value) pair to function. Get(key), Update(key,value), and Remove/Delete(key) are other methods that are required to have a working hash table. A Hash function accepts a key as input and tells where to look. All hashing methods use a hash code/hash function denoted by h. If k is a random key, then there will be no collisions, and h(k) is the address of a position in the hash table. An instance of a collision is when there is more than one record of h(k). This cannot happen and as a result a collision will occur [1].

**Collision Resolution**

**Bibliography**

[1] W. D. Maurer and T. G. Lewis, “Hash table methods,” *ACM Computing Surveys*, vol. 7, no. 1, pp. 5–19, 1975.