Hash Function h1(): The hash function takes an integer key as input and returns a hash value between 0 and 10.

The function uses a combination of arithmetic operations to mix the bits of the key and produce a unique hash value.

The hash value is calculated as (key + 7) * (key + 7) / 16 + key % M, where M is the size of the hash table.

The hash function is designed to distribute the keys evenly across the hash table.

Insert Function insert(): The insert function takes a key and the hash table as input and inserts the key into the hash table.

The function first calculates the home slot for the key using the h1() function.

If the home slot is already occupied, the function uses linear probing to find the next available slot.

Linear probing involves incrementing the probe slot by 1 and taking the result modulo M to wrap around to the beginning of the hash table if necessary.

If the hash table is full, the function prints an error message and returns.

Print Hash Table Function print_hash_table(): The print hash table function takes the hash table as input and prints its contents.

The function prints the slot numbers and the corresponding key values.

The function is used to display the contents of the hash table after inserting the keys.

Main Function main(): The main function initializes an array hash_table with -1 values to represent empty slots.

The function defines an array keys containing 10 integer keys to be inserted into the hash table.

The function iterates through the keys array, inserts each key into the hash table using the insert() function, and prints the home slot for each key.

Finally, the function prints the contents of the hash table using the print_hash_table() function.

Key Points: The code implements a simple hash table with linear probing to handle collisions.

The hash function is designed to distribute the keys evenly across the hash table.

The insert function uses linear probing to handle collisions and find an available slot in the hash table.

The print hash table function is used to display the contents of the hash table.

The main function demonstrates the usage of the hash table by inserting keys and printing the contents of the hash table.