

```

class HashTable:

    def __init__(self, size):

        self.size = size

        self.table = [[] for _ in range(self.size)]


    def hash_function(self, key):

        return key % self.size


    def insert(self, key, value):

        hash_index = self.hash_function(key)

        # Check if key already exists; update if found
        for i, (existing_key, _) in enumerate(self.table[hash_index]):
            if existing_key == key:
                self.table[hash_index][i] = (key, value)
                print(f"Key {key} updated with new value {value}")
                return

        # If key not found, append new key-value pair
        self.table[hash_index].append((key, value))
        print(f"Key {key} with value {value} inserted")


    def search(self, key):

        hash_index = self.hash_function(key)

        for existing_key, value in self.table[hash_index]:
            if existing_key == key:
                print(f"Value for key {key}: {value}")
                return value

```

```
print(f"Key {key} not found")
```

```
return None
```

```
def delete(self, key):
```

```
    hash_index = self.hash_function(key)
```

```
    for i, (existing_key, _) in enumerate(self.table[hash_index]):
```

```
        if existing_key == key:
```

```
            del self.table[hash_index][i]
```

```
            print(f"Key {key} deleted")
```

```
            return True
```

```
    print(f"Key {key} not found for deletion")
```

```
    return False
```

```
def display(self):
```

```
    print("\nHash Table Contents:")
```

```
    for i, chain in enumerate(self.table):
```

```
        print(f"Table {i+1}: {chain}")
```

```
# Example usage:
```

```
if __name__ == "__main__":
```

```
    hash_table = HashTable(7)
```

```
    while True:
```

```
        print("\nHash Table Operations:")
```

```
        print("1. Insert")
```

```
        print("2. Search")
```

```
        print("3. Delete")
```

```
        print("4. Display")
```

```
print("5. Exit")

choice = input("Enter your choice: ")

if choice == '1':
    key = int(input("Enter key (integer): "))
    value = input("Enter value: ")
    hash_table.insert(key, value)
elif choice == '2':
    key = int(input("Enter key to search: "))
    hash_table.search(key)
elif choice == '3':
    key = int(input("Enter key to delete: "))
    hash_table.delete(key)
elif choice == '4':
    hash_table.display()
elif choice == '5':
    print("Exiting...")
    break
else:
    print("Invalid choice. Please try again.")
```