20 Python Dictionary Programs

1. Create a Dictionary

```
my_dict = {"name": "Alice", "age": 25, "city": "New York"}
print(my_dict)
```

2. Access Elements

```
print(my_dict["name"])
```

3. Add Key-Value Pair

```
my_dict["email"] = "alice@example.com"
print(my_dict)
```

4. Update Value

```
my_dict["age"] = 26
print(my_dict)
```

5. Delete a Key

```
del my_dict["city"]
print(my_dict)
```

6. Check if Key Exists

```
if "name" in my_dict:
    print("Key exists")
```

7. Get All Keys and Values

```
print(my_dict.keys())
print(my_dict.values())
```

8. Dictionary Length

```
print(len(my_dict))
```

9. Loop Through Dictionary

```
for key, value in my_dict.items():
```

```
    print(key, ":", value)
```

10. Merge Two Dictionaries

```
dict1 = {"a": 1, "b": 2}
dict2 = {"c": 3}
dict1.update(dict2)
print(dict1)
```

11. Dictionary with List as Values

```
students = {
    "Alice": [85, 90, 95],
    "Bob": [78, 88, 84]
}
print(students["Alice"])
```

12. Count Frequency of Characters

```
string = "hello world"
freq = {}
for char in string:
    if char in freq:
        freq[char] += 1
    else:
        freq[char] = 1
print(freq)
```

13. Convert Two Lists into Dictionary

```
keys = ['a', 'b', 'c']
values = [1, 2, 3]
my_dict = dict(zip(keys, values))
print(my_dict)
```

14. Find Max Value in Dictionary

```
marks = {"John": 87, "Mike": 95, "Sara": 90}
topper = max(marks, key=marks.get)
```

```
print("Topper is", topper)
```

15. Remove Duplicate Values

```
my_dict = {'a': 1, 'b': 2, 'c': 1}
unique_dict = {}
for k, v in my_dict.items():
    if v not in unique_dict.values():
        unique_dict[k] = v
print(unique_dict)
```

16. Sort Dictionary by Key

```
d = {"banana": 3, "apple": 4, "pear": 1}
sorted_dict = dict(sorted(d.items()))
print(sorted_dict)
```

17. Sort Dictionary by Value

```
d = {"banana": 3, "apple": 4, "pear": 1}
sorted_dict = dict(sorted(d.items(), key=lambda item: item[1]))
print(sorted_dict)
```

18. Nested Dictionary

```
students = {
    "Alice": {"age": 20, "grade": "A"},
    "Bob": {"age": 22, "grade": "B"}
}
print(students["Alice"]["grade"])
```

19. Dictionary from User Input

```
n = int(input("Enter number of entries: "))
user_dict = {}
for _ in range(n):
    key = input("Enter key: ")
    value = input("Enter value: ")
    user_dict[key] = value
```

```
print(user_dict)
```

20. Dictionary Comprehension

```
squares = {x: x*x for x in range(1, 6)}
print(squares)
```