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Roll no: 56  
Batch : C2

## Assignment 3

1. Create a dictionary with a student's name, age, and course. Add a new key grade, update age, delete course, and print all keys, values, and items.

```
student = {"name" : "Akshay", "age" : 21, "course" : "CSE"}
student["grade"] = "A"
student["age"] = 23
del student["course"]
print(student.keys())
print(student.values())
print(student.items())

dict_keys(['name', 'age', 'grade'])
dict_values(['Akshay', 23, 'A'])
dict_items([('name', 'Akshay'), ('age', 23), ('grade', 'A')])
```

2. Create a dictionary with 5 items. Add two new key-value pairs, update two existing values, delete one key using del and one using pop(), and iterate through keys and values.

```
d = {"name" : "akshay", "class" : "TY", "student" : "YES", "roll_no" : 35, "age":21 }
d["course"] = "CSE"
d["div"] = "C"
d["name"] = "Yash"
d["class"] = "SY"
del d["class"]
d.pop("student")
for key,value in d.items():
    print(key, ":", value)
```

```
name : Yash
roll_no : 35
age : 21
course : CSE
div : C
```

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3. Create a dictionary to store a book's title, author, price, and pages. Add a new key publisher, update the price, delete pages, check if author exists, and print the dictionary before and after each operation.

```
books = {"title" : "Atomic Habits", "author" : "KNT", "price" : 500, "pages" : 269}
for key,value in books.items():
    print(key,":",value)
print("\n")
books["publisher"] = "Navneet"
for key,value in books.items():
    print(key,":",value)
print("\n")
books["price"] = 999
for key,value in books.items():
    print(key,":",value)
print("\n")
del books["pages"]
for key,value in books.items():
    print(key,":",value)
print("\n")
"author" in books
```

```
title : Atomic Habits
author : KNT
price : 500
pages : 269
```

```
title : Atomic Habits
author : KNT
price : 500
pages : 269
publisher : Navneet
```

```
title : Atomic Habits
author : KNT
price : 999
pages : 269
publisher : Navneet
```

```
title : Atomic Habits
author : KNT
price : 999
publisher : Navneet
```

True

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4. Create a dictionary with employee details: id, name, department, and salary. Add a new key bonus, update salary, delete department, clear all items, and print dictionary after each operation.

```
emp = {"id" : 101,"name" : "Akshay","department" : "Software","salary" : 23000}
for key,value in emp.items():
    print(key,":",value)
print("\n")
emp["bonus"] = None
for key,value in emp.items():
    print(key,":",value)
print("\n")
emp["salary"] = 50000
for key,value in emp.items():
    print(key,":",value)
print("\n")
del emp["department"]
for key,value in emp.items():
    print(key,":",value)
print("\n")
emp.clear()
for key,value in emp.items():
    print(key,":",value)
print("\n")
```

```
id : 101
name : Akshay
department : Software
salary : 23000
```

```
id : 101
name : Akshay
department : Software
salary : 23000
bonus : None
```

```
id : 101
name : Akshay
department : Software
salary : 50000
bonus : None
```

```
id : 101
name : Akshay
salary : 50000
bonus : None
```

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5. Create a dictionary of 4 fruits and their prices. Add a new fruit, update the price of an existing fruit, delete one fruit using del, pop another fruit, and print keys, values, and items.

```
fruits = {"Apple" : 230, "Banana" : 60, "Cherry" : 150, "Oranges" : 100}
fruits["Guava"] = 150
fruits["Apple"] = 120
del fruits["Banana"]
fruits.pop("Cherry")
for key in fruits.keys():
    print(key)
print("\n")
for value in fruits.values():
    print(value)
print("\n")
for item in fruits.items():
    print(item)
print("\n")
```

Apple  
Oranges  
Guava

120  
100  
150

('Apple', 120)  
('Oranges', 100)  
('Guava', 150)

6. Create two sets of integers. Perform union, intersection, difference, symmetric difference, add a new element, remove an element, check subset and superset, and print the results after each operation.

```
set1 = {1,5,2,83,6}
set2 = {4,2,7,5,1}
print(set1.union(set2))
print(set1.intersection(set2))
print(set1.difference(set2))
print(set1.symmetric_difference(set2))
set2.add(33)
print(set2)
set2.remove(2)
print(set2)
print(set1.issubset(set2))
print(set1.issuperset(set2))
```

{1, 2, 4, 5, 6, 7, 83}  
{1, 2, 5}  
{83, 6}  
{83, 4, 6, 7}  
{1, 2, 33, 4, 5, 7}  
{1, 33, 4, 5, 7}  
False  
False

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7. Create two sets of colors. Add a new color to each set, remove one color, find union, intersection, difference, symmetric difference, and check if one set is subset or superset of the other.

```
A = {"Red", "Orange", "Yellow", "Pink", "Purple"}
B = {"Black", "Blue", "Red", "Orange", "Green"}
A.add("White")
B.add("Violet")
A.remove("Yellow")
print(A.union(B))
print(A.intersection(B))
print(A.difference(B))
print(A.symmetric_difference(B))
print(A.issubset(B))
print(A.issuperset(B))
```

{'Red', 'White', 'Purple', 'Black', 'Blue', 'Pink', 'Violet', 'Green', 'Orange'}

{'Red', 'Orange'}

{'Pink', 'Purple', 'White'}

{'White', 'Purple', 'Blue', 'Pink', 'Violet', 'Green', 'Black'}

False

False

8. Create a set of 10 numbers. Add three new numbers, remove two numbers, print the set, and perform union, intersection, difference, and symmetric difference with another set.

```
A = {1, 2, 3, 4, 5, 6, 7, 8, 9, 0}
B = {2, 6, 1, 95, 11}
A.add(12)
A.add(84)
A.add(11)
A.remove(7)
A.remove(8)
print(A.union(B))
print(A.intersection(B))
print(A.issubset(B))
print(A.issuperset(B))
```

{0, 1, 2, 3, 4, 5, 6, 9, 11, 12, 84, 95}

{1, 2, 11, 6}

False

False

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9. Create a dictionary with product details: name, quantity, price, and category. Add a discount key, update quantity and price, delete category, print keys, values, and items, and check if name exists.

```
product = {  
    "name": "Laptop",  
    "quantity": 10,  
    "price": 55000,  
    "category": "Electronics"  
}  
  
product["discount"] = "10%"  
product["quantity"] = 12  
product["price"] = 52000  
  
del product["category"]  
  
print("Keys:", product.keys())  
print("Values:", product.values())  
print("Items:", product.items())  
  
print("Is 'name' key present?", "name" in product)
```

```
Keys: dict_keys(['name', 'quantity', 'price', 'discount'])  
Values: dict_values(['Laptop', 12, 52000, '10%'])  
Items: dict_items([('name', 'Laptop'), ('quantity', 12), ('price', 52000), ('discount', '10%')])  
Is 'name' key present? True
```

10. Create a dictionary with 5 student names and their scores. Add scores for 2 more students, update 3 scores, delete 1 student using del and another using pop(), and iterate through keys and values.

```
students = {"Akshay" : 67 , "Sonali" : 76 , "Yash" : 47 , "Aayush" : 89 , "Aditya" : 57 , "Nilesh" : 63}  
students["Vaishnavi"] = 63  
students["Rupali"] = 76  
students["Akshay"] = 99  
students["Sonali"] = 89  
students["Nilesh"] = 78  
del students["Nilesh"]  
students.pop("Aayush")  
for key,value in students.items():  
    print(key,":",value)
```

```
Akshay : 99  
Sonali : 89  
Yash : 47  
Aditya : 57  
Vaishnavi : 63  
Rupali : 76
```



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11. Create two sets of numbers representing exam scores. Perform union, intersection, difference, symmetric difference, add a new score, remove a score, and check if one set is subset or superset of the other.

```
set1 = {1,5,2,83,6}
set2 = {4,2,7,5,1}
print(set1.union(set2))
print(set1.intersection(set2))
print(set1.difference(set2))
print(set1.symmetric_difference(set2))
set2.add(33)
print(set2)
set2.remove(2)
print(set2)
print(set1.issubset(set2))
print(set1.issuperset(set2))
```

```
{1, 2, 4, 5, 6, 7, 83}
{1, 2, 5}
{83, 6}
{83, 4, 6, 7}
{1, 2, 33, 4, 5, 7}
{1, 33, 4, 5, 7}
False
False
```

12. Create a set of cities you have visited. Add 2 new cities, remove 1 city, perform union, intersection, difference, symmetric difference with another set of cities, and check subset/superset relationships.

```
visited_cities = {"Mumbai", "Pune", "Goa", "Delhi", "Bangalore"}
print("Original set of visited cities:", visited_cities)
visited_cities.add("Hyderabad")
visited_cities.add("Chennai")
print("\nAfter adding two new cities:", visited_cities)
visited_cities.remove("Goa")
print("\nAfter removing one city:", visited_cities)
other_cities = {"Kolkata", "Delhi", "Pune", "Jaipur", "Hyderabad"}
print("\nAnother set of cities:", other_cities)
print("\nUnion:", visited_cities.union(other_cities))
print("Intersection:", visited_cities.intersection(other_cities))
print("Difference:", visited_cities.difference(other_cities))
print("Symmetric Difference:", visited_cities.symmetric_difference(other_cities))
print("\nIs visited_cities a subset of other_cities?", visited_cities.issubset(other_cities))
print("Is visited_cities a superset of other_cities?", visited_cities.issuperset(other_cities))
```

Original set of visited cities: {'Bangalore', 'Goa', 'Pune', 'Delhi', 'Mumbai'}

After adding two new cities: {'Bangalore', 'Goa', 'Hyderabad', 'Pune', 'Chennai', 'Delhi', 'Mumbai'}

After removing one city: {'Bangalore', 'Hyderabad', 'Pune', 'Chennai', 'Delhi', 'Mumbai'}

Another set of cities: {'Delhi', 'Hyderabad', 'Pune', 'Jaipur', 'Kolkata'}

Union: {'Bangalore', 'Hyderabad', 'Chennai', 'Jaipur', 'Kolkata', 'Pune', 'Delhi', 'Mumbai'}

Intersection: {'Delhi', 'Hyderabad', 'Pune'}

Difference: {'Bangalore', 'Mumbai', 'Chennai'}

Symmetric Difference: {'Bangalore', 'Chennai', 'Jaipur', 'Kolkata', 'Mumbai'}

Is visited\_cities a subset of other\_cities? False

Is visited\_cities a superset of other\_cities? False

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13. Create a dictionary of 4 countries and their capitals. Add two more countries, update a capital, delete one country using del and another using pop(), print all keys, values, items, and check if a country exists.

```
countries = {
    "India": "New Delhi",
    "Japan": "Tokyo",
    "France": "Paris",
    "Germany": "Berlin"
}

countries["Italy"] = "Rome"
countries["Canada"] = "Ottawa"

countries["Japan"] = "Osaka"

del countries["France"]
countries.pop("Germany")

print("Keys:", countries.keys())
print("Values:", countries.values())
print("Items:", countries.items())

print("Is India in dictionary?", "India" in countries)

Keys: dict_keys(['India', 'Japan', 'Italy', 'Canada'])
Values: dict_values(['New Delhi', 'Osaka', 'Rome', 'Ottawa'])
Items: dict_items([('India', 'New Delhi'), ('Japan', 'Osaka'), ('Italy', 'Rome'), ('Canada', 'Ottawa')])
Is India in dictionary? True
```

14. Create a set of 8 favourite movies. Add 2 movies, remove 1 movie, perform union, intersection, difference, symmetric difference with another set, and check subset and superset.

```
favorite_movies = {"Inception", "Interstellar", "Avatar", "Titanic", "The Dark Knight", "Joker", "Gladiator", "Avengers"}

favorite_movies.add("Spider-Man")
favorite_movies.add("Iron Man")

favorite_movies.remove("Titanic")

other_movies = {"Avatar", "Joker", "Frozen", "Moana", "Avengers"}

print("Union:", favorite_movies.union(other_movies))
print("Intersection:", favorite_movies.intersection(other_movies))
print("Difference:", favorite_movies.difference(other_movies))
print("Symmetric Difference:", favorite_movies.symmetric_difference(other_movies))

print("Is favorite_movies subset of other_movies?", favorite_movies.issubset(other_movies))
print("Is favorite_movies superset of other_movies?", favorite_movies.issuperset(other_movies))

Union: {'The Dark Knight', 'Inception', 'Interstellar', 'Joker', 'Spider-Man', 'Gladiator', 'Frozen', 'Avatar', 'Avengers', 'Moana', 'Iron Man'}
Intersection: {'Joker', 'Avatar', 'Avengers'}
Difference: {'The Dark Knight', 'Inception', 'Interstellar', 'Spider-Man', 'Gladiator', 'Iron Man'}
Symmetric Difference: {'The Dark Knight', 'Interstellar', 'Spider-Man', 'Gladiator', 'Frozen', 'Iron Man', 'Inception', 'Moana'}
Is favorite_movies subset of other_movies? False
Is favorite_movies superset of other_movies? False
```



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15. Create a dictionary for a shopping list with items and quantities. Add 3 new items, update quantities for 2 items, delete 1 item using del and another using pop(), print all keys, values, items, and check if a specific item exists.

```
shopping_list = {  
    "Milk": 2,  
    "Bread": 1,  
    "Eggs": 12,  
    "Apples": 6,  
    "Rice": 5  
}  
  
shopping_list["Bananas"] = 8  
shopping_list["Butter"] = 1  
shopping_list["Juice"] = 2  
  
shopping_list["Milk"] = 3  
shopping_list["Apples"] = 10  
  
del shopping_list["Bread"]  
shopping_list.pop("Rice")  
  
print("Keys:", shopping_list.keys())  
print("Values:", shopping_list.values())  
print("Items:", shopping_list.items())  
  
print("Is 'Eggs' in shopping list?", "Eggs" in shopping_list)
```

Keys: dict\_keys(['Milk', 'Eggs', 'Apples', 'Bananas', 'Butter', 'Juice'])

Values: dict\_values([3, 12, 10, 8, 1, 2])

Items: dict\_items([('Milk', 3), ('Eggs', 12), ('Apples', 10), ('Bananas', 8), ('Butter', 1), ('Juice', 2)])

Is 'Eggs' in shopping list? True