

ASSIGNMENT 4

class Set:

```
def __init__(self):
```

```
    self.data = []
```

```
def add(self, item):
```

```
    if item not in self.data:
```

```
        self.data.append(item)
```

```
def remove(self, item):
```

```
    if item in self.data:
```

```
        self.data.remove(item)
```

```
def contains(self, item):
```

```
    return item in self.data
```

```
def union(self, other_set):
```

```
    result = self
```

```
    for item in other_set:
```

```
        if item not in result:
```

```
            result.add(item)
```

```
    return result
```

```
def intersect(self, other_set):
```

```
    result = Set()
```

```
    for item in self:
```

```
        if item in other_set:
```

```
            result.add(item)
```

```
    return result
```

```
def difference(self, other_set):
```

```
    result = Set()
```

```
    for item in self:
```

```
        if item not in other_set:
```

```
            result.add(item)
```

```
    return result
```

```
def subset(self, other_set):
```

```
    return all(item in self for item in other_set)
```

```
def size(self):
```

```
    return len(self.data)
```

```
def __iter__(self):
```

```
    return iter(self.data)
```

```
def __contains__(self, item):
```

```
    return item in self.data
```

```
def __str__(self):
```

```
    return str(self.data)
```

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

```
    set1 = Set()
```

```
    set1.add(1)
```

```
    set1.add(2)
```

```
    set1.add("Hello")
```

```
    print("Set 1: ", set1)
```

```
print("Is Hello in Set 1? ", set1.contains("Hello"))
```

```
set2 = Set()
```

```
set2.add(2)
```

```
set2.add(3)
```

```
print("Set 2: ", set2)
```

```
print("Intersection of Set 1 and Set 2: ", set1.intersect(set2))
```

```
set3 = set1.union(set2)
```

```
print("Union of Set 1 and Set 2: ", set3)
```

```
set4 = set1.difference(set2)
```

```
print("Difference between Set 1 and Set 2: ", set4)
```

```
set5 = Set()
```

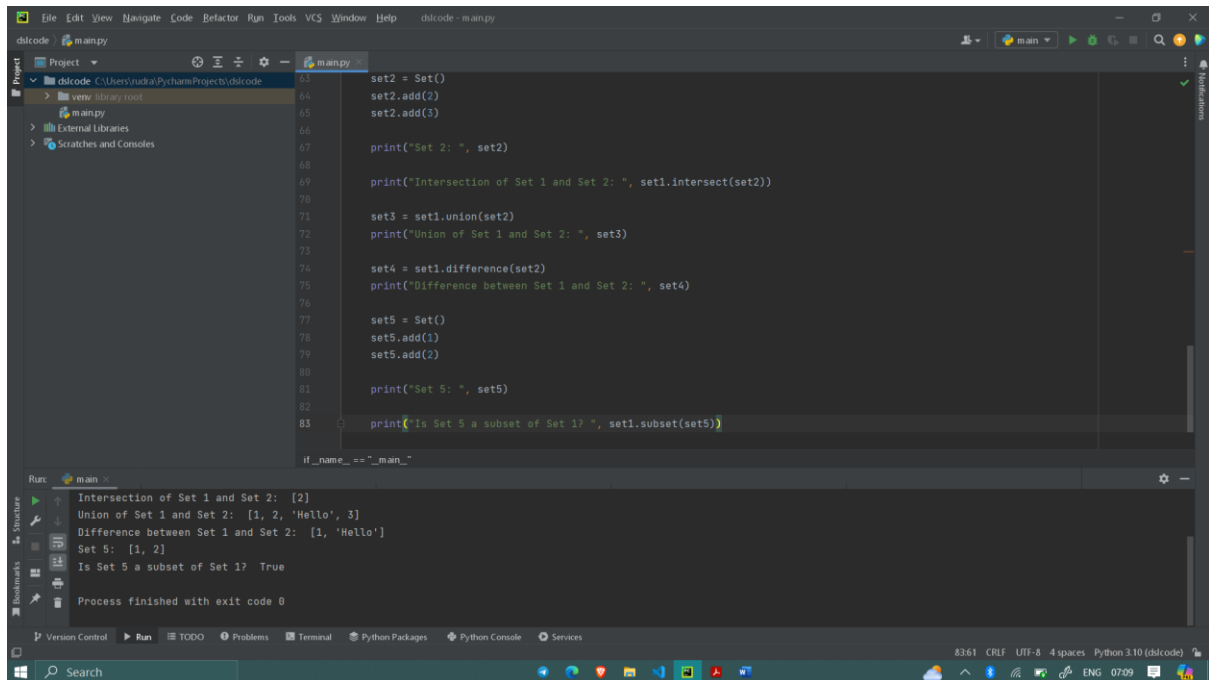
```
set5.add(1)
```

```
set5.add(2)
```

```
print("Set 5: ", set5)
```

```
print("Is Set 5 a subset of Set 1? ", set1.subset(set5))
```

OUTPUT :



The screenshot shows a Visual Studio Code editor window with a Python file named `main.py`. The code defines two sets, `set1` and `set2`, and performs various set operations. The `Run` console at the bottom displays the output of the program, which includes the intersection, union, difference, and subset checks for the sets.

```
63 set1 = Set()
64 set1.add(1)
65 set1.add('Hello')
66
67 set2 = Set()
68 set2.add(2)
69 set2.add(3)
70
71 print("Set 2: ", set2)
72
73 print("Intersection of Set 1 and Set 2: ", set1.intersection(set2))
74
75 set3 = set1.union(set2)
76 print("Union of Set 1 and Set 2: ", set3)
77
78 set4 = set1.difference(set2)
79 print("Difference between Set 1 and Set 2: ", set4)
80
81 set5 = Set()
82 set5.add(1)
83 set5.add(2)
84
85 print("Set 5: ", set5)
86
87 print("Is Set 5 a subset of Set 1? ", set1.issubset(set5))
88
89 if __name__ == "__main__":
```

Run: main

```
Intersection of Set 1 and Set 2: [2]
Union of Set 1 and Set 2: [1, 2, 'Hello', 3]
Difference between Set 1 and Set 2: [1, 'Hello']
Set 5: [1, 2]
Is Set 5 a subset of Set 1? True
Process finished with exit code 0
```