BIS 420 PROGRAMMING FOR DATA SCIENCE

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CHAPTER 10 EXERCISE 11.9
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If you did Exercise 10.8, you already have a function named has_duplicates that takes a list as a parameter and returns True if there is any object that appears more than once in the list. Use a dictionary to write a faster, simpler version of has_duplicates. Solution: http: //thinkpython. com/ code/ has_ duplicates. py .

```
from __future__ import print_function, division


def has_duplicates(t):
    d = {}
    for x in t:
        if x in d:
            return True
        d[x] = True
    return False


def has_duplicates2(t):
    return len(set(t)) < len(t)


if __name__ == '__main__':
    t = [1, 2, 3]
    print(has_duplicates(t))
```

t.append(1)

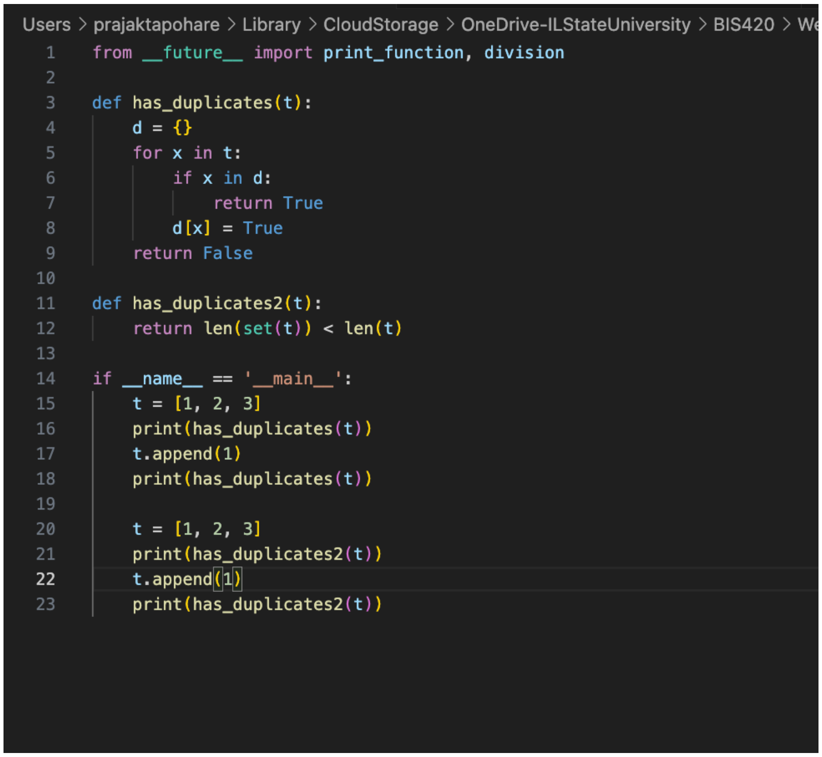
print(has_duplicates(t))

t = [1, 2, 3]

print(has_duplicates2(t))

t.append(1)

print(has_duplicates2(t))



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```