Python Session
#1: Syntax
CREEDS 2024
Basic Python Syntax

Variables and Data Types

```python
x = 5        # Integer
y = 3.14     # Float
name = "Alice" # String
is_active = True # Boolean
```

Practice

```python
x = 10
y = "Hello"
print(x)
print(y)
```
Conditional Statements

if, elif, and else statements.

```python
x = -10
if x > 0:
    print("x is positive")
else:
    print("x is negative")
```

Practice

```python
y = -5
if y > 0:
    print("y is positive")
elif y == 0:
    print("y is zero")
else:
    print("y is negative")
```
Data Handling

Using Python to read data from files (e.g., CSV)

```python
import csv

with open('data.csv', newline='') as csvfile:
    data = csv.reader(csvfile)
    for row in data:
        print(row)
```

Basic data manipulation with lists and dictionaries

```python
data = [
    {"name": "Alice", "age": 25},
    {"name": "Bob", "age": 30}
]

for entry in data:
    print(entry["name"], entry["age"])
```
Data Handling

Practice

```python
student data = [
    {"name": "John", "grade": "A"},
    {"name": "Jane", "grade": "B"}
]

for student in student_data:
    print(f"{student['name']} received grade {student['grade']}")
```
Functions

```python
def greet(name):
    return f"Hello, {name}!"

greet("Alice")
```

```python
def add(a, b):
    return a + b

add(1, 2)
```

Practice

```python
def multiply(x, y):
    return x * y

result = multiply(3, 4)
print(result)
```
Working with Lists

Creating lists

```python
fruits = ["apple", "banana", "cherry"]
```

Accessing and modifying list elements.

```python
print(fruits[0])  # Accessing first element
fruits[1] = "blueberry"  # Modifying second element
```

Common list methods

```python
fruits.append("orange")  # Adding an element
fruits.remove("apple")  # Removing an element
print(fruits)
```
numbers = [1, 2, 3, 4, 5]
print(numbers[2])  # Accessing third element
numbers.append(6)
print(numbers)
numbers.remove(3)
print(numbers)
Operators

Comparison operators: greater than, less than, equal to, etc.

```python
is_equal = (5 == 5)
is_greater = (5 > 3)
is_less = (2 < 4)
print(is_equal, is_greater, is_less)
```

Practice

```python
a = 10
b = 20
print(a + b)
print(a > b)
```
Thank you