

I. a Python program to square and cube every number in a given list of integers using Lambda.

```
numbers = [7, 5, 4, 3, 6]

square = list(map(lambda x: x ** 2, numbers))
cube = list(map(lambda x: x ** 3, numbers))

print("Squared:", square)
print("Cubed:", cube)
```

II. a Python program to find if a given string starts with a given character using Lambda.

```
starts_with = lambda string, char: string.startswith(char)

string = "University Of Karachi"
char = "U"

print(f"Does '{string}' start with '{char}'?", starts_with(string, char))
```

III. a Python program to extract year, month, date and time using Lambda.

```
from datetime import datetime

now = datetime.now()

extract = lambda dt: (dt.year, dt.month, dt.day, dt.time())

year, month, day, time = extract(now)

print("Year:", year)
print("Month:", month)
print("Day:", day)
print("Time:", time)
```

*# # I. You have collected information about cities in your province. You decide to store each city's
name, population, and mayor in a file. Write a python program to accept the data for a number
of cities from the keyboard and store the data in a file in the order in which they're entered*

```
def save_city_data(filename="cities.txt"):
    with open(filename, "w") as file:
        while True:
            city = input("Enter city name (or 'exit' to stop): ")
            if city.lower() == "exit":
                break
            population = input("Enter population: ")
            mayor = input("Enter mayor's name: ")

            file.write(f"{city}, {population}, {mayor}\n")

    print(f"Data saved to {filename}")
```

```
save_city_data()
```

*# II. Write a python program to create a data file student.txt and append the message "Now we are
AI students"s*

```
def append_message(filename="student.txt"):
    with open(filename, "a") as file: # "a" mode appends data without overwriting
        file.write("Now we are AI students\n")

    print(f'Message appended to {filename}')
```

```
append_message()
```

```
# Random Module
import random

#generate a random integer between 50 and 100
print("Random integer between 50 and 100:", random.randint(50, 100))

#generate a random floating-point number between 1.5 and 7.5
print("Random float between 1.5 and 7.5:", random.uniform(1.5, 7.5))

#choose random element from list
colors = ["Red", "Blue", "Green", "Yellow", "Purple"]
random_color = random.choice(colors)
print("Randomly chosen color:", random_color)

#shuffle deck of cards
deck = list(range(1, 53))
random.shuffle(deck)
print("Shuffled deck:", deck[:10]) #will show first 10 cards

#randomly picks 5 lottery numbers from 1 to 50
lottery_numbers = random.sample(range(1, 51), 5)
print("Lottery numbers:", lottery_numbers)

# Time Module
import time

current_time = time.time()
print("Current time in seconds since epoch:", current_time)

# Convert the time to a human-readable string
print("Human-readable time:", time.ctime(current_time))

# Pause the execution for 3 seconds
print("Pausing for 3 seconds...")
time.sleep(3)
print("Resumed execution.")
```