

# Prelim Skills Exam

## Developing Applications and Automation (CPE028)

Copy screenshots of python codes and simulation output. Make sure to include your name.

### A. Creating Virtual Environment (10 points)

1. Create a python 3 virtual environment. Use your name and then DevOps as a virtual environment name. Example villanueva\_devops
2. Activate the virtual environment.
3. Execute a command to check what packages are installed in the system environment.
4. Create requirements.txt and, then execute a command to install the packages as stated in the requirements.txt (Note: Install at least four (4) packages)

### B. Create a python Unit Test (15 points)

Create at least 4 test cases of the python unit test to test the given python script.

```
class Temperature:
    def __init__(self, kelvin=None, celsius=None, fahrenheit=None):
        values = [x for x in [kelvin, celsius, fahrenheit] if x]

        if len(values) < 1:
            raise ValueError('Need argument')

        if len(values) > 1:
            raise ValueError('Only one argument')

        if celsius is not None:
            self.kelvin = celsius + 273.15
        elif fahrenheit is not None:
            self.kelvin = (fahrenheit - 32) * 5 / 9 + 273.15
        else:
            self.kelvin = kelvin

        if self.kelvin < 0:
            raise ValueError('Temperature in Kelvin cannot be negative')

    def __str__(self):
        return f'Temperature = {self.kelvin} Kelvins'
```

C. Parsing Different Data Types with Python (20 points)

Parse the given JSON / XML file for COVID cases. Retrieve the date reported, countries and territories, number of cases, and deaths. Create a new CSV file and then save the retrieved data to the CSV file.

D. Git Commands (5 points)

1. Create a repository PRELIM\_SKILLS\_EXAM to your GITHUB account.
2. Upload your files using the GIT command. Make sure to include the necessary comments.