# Practical 7 – CP2403

(Please ensure you show your work to your tutor once completed as each practical is 3 marks.)

**Part 1** – Download the Jupyter notebook for Module 7 and run the notebook

**Part 2**

Download the Jupyter Notebook Template for Prac 7 from LearnJCU. Complete the template & run the code. Refer to Module 7 Lecture Jupyter Notebook for help

Complete the questions in Part 3 as you work on the Prac 7 template

**Part 3**

**Scenario 1**

We want to find out the association between electricity use per person (relectricperperson (x)) and oil use per person (oilperperson (y))

|  |
| --- |
| **Step 1: hypothesis** |
| Null hypothesis (Ho): (Hint : Slide 12) |
| **Step 2: Data Selection (Hint : Slide 13)** |
|  |
| **Step 3: Assess the evidence** |
| Scatter Plot |
| Pearson correlation (r): |
| p: |
| **Step 4: Draw Conclusion (Hint : Slide 19)** |
|  |

**Scenario 2**

We want to find out the association between CO2 emission (co2emissions (x)) and oil use per person (oilperperson (y))

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| --- |
| **Step 1: hypothesis** |
| Null hypothesis (Ho): (Hint : Slide 12) |
| **Step 2: Data Selection (Hint : Slide 13)** |
|  |
| **Step 3: Assess the evidence** |
| Scatter Plot |
| Pearson correlation (r): |
| p: |
| **Step 4: Draw Conclusion (Hint : Slide 19)** |
|  |

**Scenario 3**

We want to perform regression analysis between electricity use per person (relectricperperson (x)) and oil use per person (oilperperson (y))

|  |
| --- |
| **1: Scatter plot with regression line** |
|  |
| **2: Regression Analysis results** |
|  |
| **3: Regression line – if valid (Hint : Slide 26)** |
| oilperperson = b + m(relectricperperson) |
| **4: Residual plot – if required (Hint : Slide 17)** |
|  |
| **5: Conclusion from residual plot – if valid (Hint : Slide 31)** |
|  |

**Scenario 4**

We want to perform regression analysis between CO2 emission (co2emissions (x)) and oil use per person (oilperperson (y))

|  |
| --- |
| **1: Scatter plot with regression line (Hint: Same as previous example)** |
|  |
| **2: Regression Analysis results** |
|  |
| **3: Regression line – if valid (Hint : Slide 26)** |
| oilperperson = b + m(co2emissions) |
| **4: Residual plot – if required (Hint : Slide 17)** |
|  |
| **5: Conclusion from residual plot – if valid (Hint : Slide 31)** |
|  |

**Scenario 5**

We want to perform regression analysis between electricity use per person (relectricperperson (x)) and oil use per person (oilperperson (y)) for LOW CO2 emission countries

|  |
| --- |
| **1: Scatter plot with regression line (Hint : same as previous example)** |
|  |
| **2: Regression Analysis results** |
|  |
| **3: Regression line** |
| oilperperson = b + m(co2emissions) |
| **4: Residual plot – if required** |
|  |
| **5: Conclusion from residual plot – if valid** |
|  |

**Scenario 6**

We want to perform regression analysis between electricity use per person (relectricperperson (x)) and oil use per person (oilperperson (y)) for MEDIUM CO2 emission countries

|  |
| --- |
| **1: Scatter plot with regression line (Hint: same as previous example)** |
|  |
| **2: Regression Analysis results** |
|  |
| **3: Regression line** |
| oilperperson = b + m(co2emissions) |
| **4: Residual plot – if required** |
|  |
| **5: Conclusion from residual plot – if valid** |
|  |

**Scenario 7**

We want to perform regression analysis between electricity use per person (relectricperperson (x)) and oil use per person (oilperperson (y)) for HIGH CO2 emission countries

|  |
| --- |
| **1: Scatter plot with regression line (Hint : same as previous example)** |
|  |
| **2: Regression Analysis results** |
|  |
| **3: Regression line** |
| oilperperson = b + m(co2emissions) |
| **4: Residual plot – if required** |
|  |
| **5: Conclusion from residual plot – if valid** |
|  |