Part 2 – Spatial Analysis Methodologies.

20% Equivalent 600 words. You will carry out the work required for this element of the assessment between weeks 7 until the final submission date 4th January 2019.

Part 2 will test your ability to solve a spatial problem and your ability to logically follow a process, reflecting on any issues that may affect your final answer. You will submit a critical commentary on the process of solving a spatial problem using a variety of analysis methodologies. **You will be set the spatial analysis challenge in Week 7 of the course**.

You should explain:

- Which methods were chosen to tackle the challenge – e.g. what spatial data type? (Shapefile, SimpleFeatures, SP, Geodatabase, Geojson etc. – pros and cons of each).
- Which software did you choose – why?
- Which methods/packages/toolbox tools etc. did you use? Why?
- If you identify more than one way of answering the problem, why did you choose the method you did?
- What was the logical sequence of steps you went through in solving each element of the challenge?
- Problems with data / methods

We are marking the approach you take to answer the problem. We would expect you to describe the different built in functions that you used to answer these questions.

- At the beginning we expect a short section on how you processed your raw data into a format suitable for your GISystem of choice ready for answering your 6 questions.
- Explain how you answer each question. You may wish to describe each function or toolbox that you used to answer the questions.
- Then you can critically evaluate your results with respect to any uncertainties related to your data, methodologies, or software limitations, etc.
- To exemplify your answer, you may include some pictures or diagrams to explain your processes.

1. Vector length question: How far did you travel (according to the trace they recorded We all can calculate google travel distance using routing service so do not do this.
2. Line and point Buffer and intersect: How many TfL station did your route pass within 100 metres distance?
3. Sum, attribute, Point buffer: How many points did you score based on treasure hunt locations they managed to get within 300 metres of? Download the csv file of the location and scores from Moodle.
4. Max/Min, line/polygon intersect: Which Wards did you pass through that had the (a) lowest and (b) the highest rates of Male Life Expectancy?
5. Average, Line/polygon intersect: Taking the average of all Wards that you passed through, what was the average life expectancy at birth for babies born in those wards along the whole route? This can be both Male and Female life expectancies.
6. Point pattern: Is there any spatial patterns for CASA Treasure Hunt locations or are they randomly distributed?

Part 2 is marked according to the following criteria:

1. **Context and relevance**: Context relating to data types, software, methods, tools, packages, process and framework. (25%)

   At the beginning we expect a short section on how you processed your raw data into a format suitable for your GISystem of choice ready for answering your 6 questions.

2. **Applicability and Complexity**: Design, fitness-to-purpose, and (re)usability of the methodology and tools, complexity of the proposed techniques/framework (30%)

   Explain how you answer each question. You may wish to describe each function or toolbox that you used to answer the questions.

3. **Knowledge, understanding, and reflection**: Quality of the critical commentary, reference to literature or discussion on the other possible methodologies. Limits imposed by different software etc. Reflection, etc. (35%)

   Then you can critically evaluate your results with respect to any uncertainties related to your data, methodologies, or software limitations, etc.

4. **Communication and Overall Presentation**: Quality of writing and results. (10%)

   To exemplify your answer, you may include some pictures or diagrams to explain your processes.