

# Small project

Start Assignment

- Due 22 Apr by 14:00
- Points 30
- Submitting a file upload
- File types py, doc, pdf, docx, and odt
- Available 8 Mar at 18:00 - 25 Apr at 23:59

## Basic information

**Title:** Coding project

**% of final grade:** 30%

**Format of submission:** Python code + short report

**Duration:** at least 6 weeks

**The submission deadline is:** 18 April 2024, 14:00

**This assignment will be available until:** 21 April 2024, 23:59

**Important:**

- a) Angles are in radians, unless stated otherwise;
- b) When rounding, you must keep at least two significant digits

## Please, download

1) the **assignment brief**: **Project\_brief.pdf** (<https://herts.instructure.com/courses/111972/files/8417431?wrap=1>)  
↓ ([https://herts.instructure.com/courses/111972/files/8417431/download?download\\_frd=1](https://herts.instructure.com/courses/111972/files/8417431/download?download_frd=1))

2) your **data files** (please, read the brief first to find out which data files you need):

Last digit of student ID number	File 1	File 2
0	<a href="https://herts.instructure.com/courses/111972/files/8417845?wrap=1">2020input0.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417845?wrap=1">https://herts.instructure.com/courses/111972/files/8417845?wrap=1</a> ) ↓ ( <a href="https://herts.instructure.com/courses/111972/files/8417845/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417845/download?download_frd=1</a> )	<a href="https://herts.instructure.com/courses/111972/files/8417845?wrap=1">2024input0.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417845?wrap=1">https://herts.instructure.com/courses/111972/files/8417845?wrap=1</a> ) ↓ ( <a href="https://herts.instructure.com/courses/111972/files/8417845/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417845/download?download_frd=1</a> )
1	<a href="https://herts.instructure.com/courses/111972/files/8417846?wrap=1">2020input1.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417846?wrap=1">https://herts.instructure.com/courses/111972/files/8417846?wrap=1</a> ) ↓ ( <a href="https://herts.instructure.com/courses/111972/files/8417846/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417846/download?download_frd=1</a> )	<a href="https://herts.instructure.com/courses/111972/files/8417846?wrap=1">2024input1.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417846?wrap=1">https://herts.instructure.com/courses/111972/files/8417846?wrap=1</a> ) ↓ ( <a href="https://herts.instructure.com/courses/111972/files/8417846/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417846/download?download_frd=1</a> )
2	<a href="https://herts.instructure.com/courses/111972/files/8417847?wrap=1">2020input2.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417847?wrap=1">https://herts.instructure.com/courses/111972/files/8417847?wrap=1</a> ) ↓	<a href="https://herts.instructure.com/courses/111972/files/8417847?wrap=1">2024input2.csv</a> ( <a href="https://herts.instructure.com/courses/111972/files/8417847?wrap=1">https://herts.instructure.com/courses/111972/files/8417847?wrap=1</a> ) ↓

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3	<u><a href="#">2020input3.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417848?wrap=1">https://herts.instructure.com/courses/111972/files/8417848?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417848/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417848/download?download_frd=1</a> <a href="https://herts.instructure.com/courses/111972/files/8417849?wrap=1">https://herts.instructure.com/courses/111972/files/8417849?wrap=1</a>	<u><a href="#">2024input3.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417848?wrap=1">https://herts.instructure.com/courses/111972/files/8417848?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417848/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417848/download?download_frd=1</a>
4	<u><a href="#">2020input4.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417849?wrap=1">https://herts.instructure.com/courses/111972/files/8417849?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417849/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417849/download?download_frd=1</a>	<u><a href="#">2024input4.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417849?wrap=1">https://herts.instructure.com/courses/111972/files/8417849?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417849/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417849/download?download_frd=1</a>
5	<u><a href="#">2020input5.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417850?wrap=1">https://herts.instructure.com/courses/111972/files/8417850?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417850/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417850/download?download_frd=1</a>	<u><a href="#">2024input5.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417850?wrap=1">https://herts.instructure.com/courses/111972/files/8417850?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417850/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417850/download?download_frd=1</a>
6	<u><a href="#">2020input6.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417851?wrap=1">https://herts.instructure.com/courses/111972/files/8417851?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417851/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417851/download?download_frd=1</a>	<u><a href="#">2024input6.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417851?wrap=1">https://herts.instructure.com/courses/111972/files/8417851?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417851/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417851/download?download_frd=1</a>
7	<u><a href="#">2020input7.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417852?wrap=1">https://herts.instructure.com/courses/111972/files/8417852?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417852/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417852/download?download_frd=1</a> <a href="https://herts.instructure.com/courses/111972/files/8417853?wrap=1">https://herts.instructure.com/courses/111972/files/8417853?wrap=1</a>	<u><a href="#">2024input7.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417852?wrap=1">https://herts.instructure.com/courses/111972/files/8417852?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417852/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417852/download?download_frd=1</a>
8	<u><a href="#">2020input8.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417853?wrap=1">https://herts.instructure.com/courses/111972/files/8417853?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417853/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417853/download?download_frd=1</a> <a href="https://herts.instructure.com/courses/111972/files/8417854?wrap=1">https://herts.instructure.com/courses/111972/files/8417854?wrap=1</a>	<u><a href="#">2024input8.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417853?wrap=1">https://herts.instructure.com/courses/111972/files/8417853?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417853/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417853/download?download_frd=1</a> <a href="https://herts.instructure.com/courses/111972/files/8417854?wrap=1">https://herts.instructure.com/courses/111972/files/8417854?wrap=1</a>
9	<u><a href="#">2020input9.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417854?wrap=1">https://herts.instructure.com/courses/111972/files/8417854?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417854/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417854/download?download_frd=1</a>	<u><a href="#">2024input9.csv</a></u> <a href="https://herts.instructure.com/courses/111972/files/8417854?wrap=1">https://herts.instructure.com/courses/111972/files/8417854?wrap=1</a> ↓ <a href="https://herts.instructure.com/courses/111972/files/8417854/download?download_frd=1">https://herts.instructure.com/courses/111972/files/8417854/download?download_frd=1</a>

**This assignment assesses the following module learning outcomes:**

- Demonstrate knowledge and understanding of relevant computational algorithms and the fundamentals of probability, information and statistical methods

- Demonstrate knowledge and understanding of producing appropriate algorithms for solving data analysis problems
- Be able to apply basic mathematical skills to simple data science problems
- Be able to choose and apply suitable algorithms to analyse a given dataset

#### Additional information for students

- The automated Canvas lateness penalty will apply to submissions after **Due** time but before **Available Until** time.
- Submissions after Available Until time will **NOT** be accepted. If you miss the deadline, (a) you may be eligible to apply for Serious Adverse Circumstances: <https://ask.herts.ac.uk/serious-adverse-circumstances-sac> (<https://ask.herts.ac.uk/serious-adverse-circumstances-sac>) **or** (b) UPR AS14 D52.2.2 and D5.2.2.3 will apply (*“Where a module numeric grade of 19 or less has been achieved through unintended non-submission of coursework or non-attendance at an examination or in-class test, Module Boards and Short Course Boards have the discretion to award a FREFE/FREFC/FREFB status code”*).
- This is an individual assignment. Regulations governing academic integrity and academic misconduct apply, see: [https://www.herts.ac.uk/\\_data/assets/pdf\\_file/0007/237625/AS14-Apx3-Academic-Misconduct.pdf](https://www.herts.ac.uk/_data/assets/pdf_file/0007/237625/AS14-Apx3-Academic-Misconduct.pdf) ([https://www.herts.ac.uk/\\_data/assets/pdf\\_file/0007/237625/AS14-Apx3-Academic-Misconduct.pdf](https://www.herts.ac.uk/_data/assets/pdf_file/0007/237625/AS14-Apx3-Academic-Misconduct.pdf)).
- For postgraduate modules a score of 50% or above represents a pass mark