Course Plan Digital Solutions Year 11/12

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| Subject | Digital Solutions Year 11 | |
| Course | Data manipulation with Panda (Python) | |
| Overview | Learn how to prepare your data for insightful analyses with Python and Pandas! Data has become one of the most integral driving forces behind every industry - from retail marketing to machine learning application development. Knowing how to effectively manage, manipulate, and analyze data is consequently one of the most in-demand skills for many different jobs and hobbies. Using Pandas, an open-source Python library with easy-to-use data structures and data analysis tools, you'll explore techniques for reading data from different sources and structuring that data for different activities. You'll also learn useful ways to manipulate sample data with features such as sorting to gain quick insights, as well as prepare that data for different, more complex forms of analysis. No matter what kind of data you're working with, these skills will give you the foundations you need to organize data quickly and efficiently for whatever decision-making obstacles come your way. **You will learn how to:**   * Access the Pandas library * Obtain data from CSV and Excel files * Utilize DataFrames to structure data * Select certain sets of data * Sort data with various criteria * Group data by properties   ... and more. **Course requirements** This course assumes basic familiarity with Python. We recommend that students complete [Intro to Python](https://schools.zenva.com/course/python-programming-for-beginners/) or a similar resource before starting this course. Students can follow along with [Anaconda](https://www.anaconda.com/), but will be required to import the provided development environment file. Students will also need to install [Python](https://www.python.org/) version 3.6 or later. | |
| Technique | Project - Digital Solutions | |
| Unit | Digital solutions: Unit 1 Creating with Code | |
| topics | Unit topics  1. Understanding digital problems  2. User experiences and interfaces  3. Algorithms and programming techniques  4. Programmed solutions | Course topics  1.Introduction  2.Panda Dataframes  3. Reading in Data  4. Getting to know Our Data  5. Selecting Data  6. Sorting Data  7. Filtering data  8. Grouping Data  9. Conclusion |
| Conditions | Self paced | |
| Duration | 9 lessons | |
| Resources | **Frameworks and Tools**  Python 3.6, Anaconda 5.2, Pandas 0.23, NumPy 1.15 |  |
| Unit objectives | 1. recognise and describe elements, components, principles and processes  2. symbolise and explain information, ideas and interrelationships  3. analyse problems and information    4. determine solution requirements and criteria  5. synthesise information and ideas to determine possible digital solutions  6. generate components of the digital solution  7. evaluate impacts, components and solutions against criteria to make refinements and justified recommendations  8. make decisions about and use mode-appropriate features, language and conventions for particular purposes and contexts |  |