



## PROGRAM INFORMATION: MASTER CLASSES

### Years 6, 7 and 8

<b>Program Title</b>	<b>Harry Potter, Python and Data Science</b>
<b>Time Schedule (AEDT)</b>	Registration commences 10 minutes before the session begins <b>WEEKNIGHT PROGRAMS</b> <b>Registration: 4.20 pm</b> <b>Session: 4.30 pm – 6.00 pm</b> <b>SATURDAY MORNING PROGRAMS</b> <b>Registration: 9.20 am</b> <b>Session: 9.30 am – 11.00 am</b>
<b>Zoom Meeting Links</b>	Meeting link, meeting I.D and password will be emailed two days before the program.
<b>Zoom Information</b>	Are you new to Zoom? Please use this <a href="#">link</a> for Zoom start-up information.
<b>Online Program Set-up</b>	Please prepare the following: <ul style="list-style-type: none"> <li>✓ Headphones</li> <li>✓ Notepad for writing/taking notes</li> <li>✓ Pens/pencils</li> </ul>
<b>Program Requirements</b>	NONE

### Program Description

#### Introduction:

It's interesting to ponder what makes humans unique among all the known living creatures, for the most part it is our developed intelligence and ability to work together to solve complex problems both of which are made possible by human language. One has to wonder what would be possible if we were truly understood by our phones and computers that possess which have millions of times more memory and processing power than we do . . . probably a world changing technological revolution, referred to by some a Technological Singularity.

In this masterclass we are going to be taking our first steps in Natural Language Processing a computer science field that deals with programs that analyse and understand human language. We are going to be creating algorithms that read books and derive meaning from them as well as visualise the data presented by those books in graphs. The books we will study as examples (students can analyse any book in their own time) are going to be the five Harry Potter Books.

#### Session 1: Tokenization and Basic Sentiment Analysis

In this session we break up the books into chunks that are easy to analyse: words, sentences, paragraphs and chapters. We will then analyse the data to find out which chapters and paragraphs and the most descriptive and the most emotionally charged!

#### Session 2: Finding protagonists and Creating Spectacular Data Visualisations

In this session we will learn how to create dictionaries in Python and use those together with a special tool that isolates proper nouns in order to create a ranked list of proper nouns, thus finding out who the protagonists in the book are! We will also put these on a chart to visually represent how many times each character is mentioned in the book.

#### Session 3: Sorting characters into heroes and Villains



Now that we know who the most popular character in the book are we are going to find out if they are a hero or a villain and give each of them a score that indicates how much of a hero or a baddie they are. We are also going to represent this data on a bar graph.

#### **Session 4: Mapping out Emotional Arcs of Each character**

In this final session we are going to visually chart the famous Hero's Journey coined by Joseph Campbell that describes a similar pattern in many famous stories where a character ventures out to get what they need, faces conflict, and ultimately triumphs over adversity. Picture that in a graph mapping out the emotional states of each of our protagonists as the book goes chapter by chapter: the results may surprise you!