

Python Programs and Applications for the Secondary Classroom

Presented by Sanjin Dedic



Create 5 Python programs themed on sports science, memory training and text analysis. These are wonderfully simple yet very engaging and rich in higher order thinking.

Format: Face to Face

Audience: Secondary Digital Technologies Teachers in Years 7-12

Description

A good programming activity for secondary students generally means writing code that is conceptually easy to understand and yet rich in entertainment value and higher order thinking. In this fast paced workshop you shall be creating five such activities line by line and learning how to adapt them to serve as both assessments and extension for advanced students. The concepts covered will include variables, loops, if statements, functions, lists and dictionaries. These will be applied to the following programs:

- Guess the number game (introduction to python)
- Reaction time program
- Memory training program
- Word ranking program
- Palindrome Discovery Program

Additional notes about this format

Face to face formats tend to cover a little bit less material than online courses because group discussions are a big part of the workshop.

Teachers will also get a great opportunity to network and find out what their peers from other schools are doing in the area of Python

Occurrences

Start Date	Location	Price
27/11/2018	Sydney CBD	\$377 + GST

Sessions

Guess the number game (introduction to python)

1 hour

In this session we will set out to create a simple text based game where a user guesses a number between 1 and 100. This will serve as a methodical introduction to Python. First we will learn to get user input as an integer, then we will compare it to a randomly generated number and finally we will do the process using a loop and counting the number of tries. The final program will have about 15 lines of code and apply pretty much all the Python core concepts

Reaction time program

1 hour

In this section we will learn about the time library and how it can be used to measure elapsed time in programs (a metric for efficiency). We will then use this feature to measure how fast a user can react to a GO signal in milliseconds. This is a lot of fun for students and can be a starting point for a project on data analysis

Memory training program

1 hour

In this session we will use loops in a more advanced way to cycle through characters in a string and apply this to a memory training game. The user will chose a level of difficulty whereby they have to memorise a sequence of numbers of a chosen length over a chosen time interval.

Word ranking program

1 hour

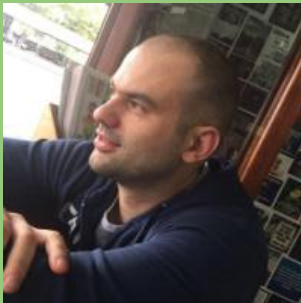
In this session we will get introduced to lists, how to create them, add to them and extract them from text files. This feature will come in handy because we will save entire books as a string, convert them to a list and then rank all words in a book by popularity. This is can be a fascinating process as we will create all the tools we need to find out what the book is about who the protagonist is and where the book is set

Palindrome Discovery Program

1 hour

It is always exciting to tackle an interesting problem where computer have a huge advantage over humans. Palindrome discovery is one such problem where we can take a text file containing a list of 20,000 English words (singulars, plurals and variations) and discover which of those words are palindromes.

About the presenter



Sanjin Dedic

Creator

Sanjin Dedi has a B.Eng in Mechatronic Systems majoring in Robotics and Computer Vision and spent several years working industry as an Engineer. He then retrained as a teacher and taught Systems Engineering and Digital Technologies at a secondary level. Recently he has been developing a series of technology programs for G.A.T.E.WAYS (gifted and talented education) covering everything from coding, robotics, applied mathematics and microcontrollers. These programs have been delivered to students in Melbourne, Sydney, Canberra and Queensland. As a head of eLearning at Techxellent he has combined his technological expertise with his educational experience to create innovative teacher training programs and resources.



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Product: Python Programs and Applications for the Secondary Classroom

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