**Thorough justification of the choice of programming language supporting the future of the educational setting**

**Advantages/Benefits of Python**

* Presence of Third-Party Modules: ...
* Extensive Support Libraries: ...
* Open Source and Community Development: ...
* Learning Ease and Support Available: ...
* User-friendly Data Structures: ...
* Productivity and Speed:

**January Headline: Python is TIOBE's** (software quality company) **programming language of the year 2018!** The Python programming language has won the title "programming language of the year"! Python has received this title because it has gained most ranking points in 2018 if compared to all other languages. The Python language has won 3.62%, followed by Visual Basic .NET and Java.

**Python is a general purpose programming language. Hence, you can use the programming language for developing both desktop and web applications. Also, you can use Python for developing complex scientific and numeric applications**. Python is designed with features to facilitate data **analysis** and visualization

<https://medium.com/@mindfiresolutions.usa/python-7-important-reasons-why-you-should-use-python-5801a98a0d0b>

**7 Reasons Why Python is good:**

**1) Readable and Maintainable Code -** While writing a software application, you must focus on the quality of its source code to simplify maintenance and updates. The syntax rules of Python allow you to express concepts without writing additional code. At the same time, Python, unlike other programming languages, emphasizes on code readability, and allows you to use English keywords instead of punctuations. Hence, you can use Python to build custom applications without writing additional code.

**2) Multiple Programming Paradigms -** Like other modern programming languages, Python also supports several programming paradigms.

**3) Compatible with Major Platforms and Systems -** At present, Python supports many operating systems. You can even use Python interpreters to run the code on specific platforms and tools.

**4) Robust Standard Library -** Its large and robust standard library makes Python score over other programming languages.

**5) Many Open Source Frameworks and Tools -** As an open source programming language, Python helps you to curtail software development cost significantly. Also, you can accelerate desktop GUI application development using [**Python GUI frameworks**](http://www.allaboutweb.biz/python-gui-frameworks-usage/)and toolkits like PyQT, WxPython.

**6) Simplify Complex Software Development -** Python is a general-purpose programming language. Hence, you can use the programming language for developing both desktop and web applications.

**7) Adopt Test Driven Development -** You can use Python to create prototype of the software application rapidly.

<https://medium.com/@mindfiresolutions.usa/python-7-important-reasons-why-you-should-use-python-5801a98a0d0b>

Python is great for writing out ideas in one long block of code. Kids will naturally start to break things into functions and classes as their code gets more difficult to manage. By learning the syntax of a language like Python prior to learning about functions, the student will gain basic programming knowledge before using global and local scope.

Pygame – advantages –

**Excellent research has been included regarding emerging technologies in the educational environment**

**2017** New Media Consortium (NMC) and the EDUCAUSE Learning Initiative release a list of emerging technologies forecast to have a significant impact on higher education in the next one-to-five years:

1. Adaptive Learning Technologies

Adaptive learning technologies use machine-driven data to measure student progress, dynamically adjusting to the level or type of course content based on an individual’s abilities or skill attainment eg **University of Wollongong, Australia** Uses [SNAPP](https://analytics.jiscinvolve.org/wp/files/2016/04/CASE-STUDY-J-University-of-Wollongong.pdf) (Social Networks Adapting Pedagogical Practice Initiative)

2. Mobile Learning

In 2016, 51.3% of web browsing worldwide took place via mobiles and tablets, [overtaking desktop browsing](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjpqpuuirHTAhUQ-GMKHRYzCrcQFggjMAA&url=https%3A%2F%2Fwww.theguardian.com%2Ftechnology%2F2016%2Fnov%2F02%2Fmobile-web-browsing-desktop-smartphones-tablets&usg=AFQjCNG-RTb6NJmQvyibK2AusW4abXs6LQ&sig2=NkLZYQkW7mr2VRj1Kva7Hw) for the first time. Mobile devices allow for deeper, more connected learning and greater access to education in general.

3. The Internet of Things (IoT)

- transmitting information across networks. When applied to student learning and campus activity, it can inform the direction of content delivery and institutional planning eg.**University of New South Wales, Australia:** As part of an ongoing [IoT project](https://www.metering.com/news/university-nsw-becomes-testbed-iot-smart-city-tech/), UNSW plans to deploy a network of sensors across its main Kensington campus.

4. Next-Generation LMS

- next generation learning management system using the digital learning environment - new learning-centred model that increasingly characterizes higher education practice.

5. Artificial Intelligence (4-5 Years)

6. Natural User Interfaces (4-5 Years)

NUIs enable users to engage in virtual activities with movements similar to what they would use in the real world, manipulating content intuitively, also eg voice recognition.

**Effective use of cloud computing in educational institutions** Tuncay Ercana \* a Yasar University, Department of Computer Engineering, Turkey, January 5, 2010.

Abstract Cloud computing is becoming an adoptable technology for many of the organizations with its dynamic scalability and usage of virtualized resources as a service through the Internet. It will likely have a significant impact on the educational environment in the future. Cloud computing is an excellent alternative for educational institutions which are especially under budget shortage in order to operate their information systems effectively without spending any more capital for the computers and network devices. Increases the benefits of common applications for students and teachers.

<https://www.opencolleges.edu.au/informed/features/6-emerging-educational-technologies-used-across-globe/>

JOURNAL ARTICLE talks about

**Emerging Web Technologies in Higher Education: A Case of Incorporating Blogs, Podcasts and Social Bookmarks in a Web Programming Course based on Students' Learning Styles and Technology Preferences**

Nauman Saeed, Yun Yang and Suku Sinnappan

*Journal of Educational Technology & Society*

Vol. 12, No. 4, New Directions in Advanced Learning Technologies (October 2009), pp. 98-109

Published by: [International Forum of Educational Technology & Society](https://www.jstor.org/publisher/ifets?refreqid=excelsior%3Af8a20978ade78e1147752cfd3d4a68fc)

https://www.jstor.org/stable/jeductechsoci.12.4.98

[Video Games and Learning: Teaching and Participatory Culture in the Digital Age. **Technology**, **Education**--Connections (the TEC Series).](https://eric.ed.gov/?id=ED523599)

[K Squire](https://scholar.google.com.au/citations?user=sFfG6PQAAAAJ&hl=en&oi=sra) - 2011 – ERIC

[Gamification in **education**: A systematic mapping study.](https://www.jstor.org/stable/pdf/jeductechsoci.18.3.75.pdf)

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[**Emerging technologies**in distance **education**](https://books.google.com.au/books?hl=en&lr=&id=MNcKm_vJ4akC&oi=fnd&pg=PA1&dq=emerging+technologies+in+the+educational+environment&ots=Fohz44twHY&sig=MxlGRYLNPZO7LV5CeVfz-hp7sXk)

[G Veletsianos](https://scholar.google.com.au/citations?user=Esx8Dw8AAAAJ&hl=en&oi=sra) - 2010 - books.google.com