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**Chapter 1 : Introduction to Industry**

Vedam Labs, Solapur is a proprietary company. It started in July 2014, with the idea of developing engineering applications and provide training to Engineering Colleges. Our vision is to reduce the gap between Industry and Colleges and reduce employability issues. Today Vedam, has its own Software and Hardware products. Apart from this, we provide Customized Software Applications and Quality Testing solutions.

**1.1 ServiceQuality Assurance – An Emerging Process**QA Testing or Quality Assurance testing is a semantic technique that participated in numerous processes to examine products and software services. Software or application development is one of the most crucial stages but it’s incomplete without QA testing. QA testing process purifies each and every insight of an application by relating all such pre-defined objectives.

**Our Quality Assurance Testing Services**  
Our QA testing solutions incorporates a well-defined strategy that builds high end-to-end qualitative products. We have various set of testing services such as Manual Testing, Automation testing, Functional testing, Database Testing, Regression testing, and E-commerce testing to validate as per need.Nowadays, businesses depend upon newly trending technologies that possess numerous benefits and helping companies to gain improvised solutions with great extendibility. QA testing companies should be proactive in order to perform in undesirable conditions.

**1.2 Vocational Trainings**

[Linux basic commands](http://www.vedamlab.com/linuxcommands/) [Installing LAMP HYPERLINK "http://www.vedamlab.com/installing-lamp-on-ubuntu/"– HYPERLINK "http://www.vedamlab.com/installing-lamp-on-ubuntu/" Linux, Apache, MySQL  and PHP](http://www.vedamlab.com/installing-lamp-on-ubuntu/)Installing python based servers[Assignment](http://www.vedamlab.com/assignment/) and [Certificate Request Form](http://www.vedamlab.com/certificate-request-form-2/)

**Chapter 2: Introduction to Raspberry Pi**

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside its target market for uses such as robotics. It does not include peripherals (such as keyboards and mice) and cases. However, some accessories have been included in several ofﬁcial and unofﬁcial bundles.



Raspberry Pi 3 Model

**Raspberry Pi**

Release date 29 February 2012

Introductory price US$35

Operating system Linux, FreeBSD, NetBSD, OpenBSD, RISC OS Windows 10 IoTCore,Plan 9

System-on-chip used Broadcom BCM2837B0

CPU 1.4 GHz 64/32-bit quadcore ARM Cortex-A53

Memory 1 GB LPDDR2 RAM at 900 MHz

Storage MicroSDHC slot

Graphics Broadcom VideoCore IV 300 MHz/400 MHz

Power 1.5 W to 6.7 W

**2.1 History of Raspberry Pi**

The organisation behind the Raspberry Pi consists of two arms. The ﬁrst two models were developed by the Raspberry Pi Foundation. After the Pi Model B was released, the Foundation set up Raspberry Pi Trading, with Eben Upton as CEO, to develop the third model, the B+. Raspberry Pi Trading is responsible for developing the technology while the Foundation is an educational charity to promote the teaching of basic computer science in schools and in developing countries.According to the Raspberry Pi Foundation, more than 5 million Raspberry Pis were sold by February 2015, making it the bestselling British computer.

By November 2016 they had sold 11 million units, and 12.5m by March 2017, making it the third best-selling "general purpose computer". In July 2017, sales reached nearly 15 million. In March 2018, sales reached 19 million.MostPis are made in a Sony factory in Pencoed, Wales; some are made in China or Japan.

2.2 **Generations of released models**

Several generations of Raspberry Pis have been released. All models feature a Broadcom system on a chip (SoC) with an integrated ARM-compatible central processing unit (CPU) and on-chip graphics processing unit (GPU).Processor speed ranges from 700 MHz to1.4 GHz for the Pi 3 Model B+; on-board memory ranges from 256 MB to 1 GB RAM. Secure Digital (SD) cards are used to store the operating system and program memory in either SDHC (early RaspberryPi's) or MicroSDHC (Later Raspberry Pi's) sizes. The boards have one to four USB ports. For video output, HDMI and composite video are supported, with a standard 3.5 mm tip-ring-sleeve jack for audio output. Lower-level output is provided by a number of GPIO pins, which support common protocols like I²C. The Bmodelshave an 8P8C Ethernet port and the Pi 3 and Pi Zero W have on-board Wi-Fi 802.11n and Bluetooth. Prices range fromUS$5 to $35.

**The first generation** (Raspberry Pi 1Model B) was released in February 2012, followed by the simpler and cheaper **Model A**. In 2014, the Foundation released a board with an improved design**, Raspberry Pi 1 Model B+**. These boards are approximately credit-card sized and

represent the standard mainline formfactor. Improved A+ and B+ models were released a year later. A "Compute Module" was released in April 2014 for embedded applications.

**The Raspberry Pi 2**, which added more random-access memory, was released in February 2015. A **Raspberry Pi Zero** with smaller size and reduced input/output (I/O) and generalpurposeinput/output (GPIO) capabilities was released in November 2015 for US$5.

By 2017, it became the newest mainline Raspberry Pi. On 28 February 2017, the **Raspberry Pi Zero W** was launched, a version of the Zero with Wi-Fi and Bluetooth capabilities, for US$10. On 12 January 2018, the **Raspberry Pi Zero WH** was launched, the same version as the Zero W with pre-soldered GPIO headers.Raspberry Pi 3 Model B was released in

February 2016 with a 1.2 GHz 64-bit quad core processor, on-board WiFi, Bluetooth and USB boot capabilities.On Pi Day 2018 the **Model 3B+** was launched with a faster 1.4 GHz processor and a three times faster gigabit Ethernet (throughput limited to ca. 300 Mbit/s by the internal USB 2.0 connection) or 2.4 / 5 GHz dualbandWi-Fi (100 Mbit / s). Other options

are: Power over Ethernet (PoE), USB boot and network boot (an SD card is no longer required).

* 1. **Features of Raspberry Pi**
* **Hardware:**

Variations in memory capacity and peripheral-device support.This block diagram describes Model B and B+; Model A, A+, and the Pi Zero are

similar, but lack the Ethernet and USB hub components. The Ethernet adapter is internally connected to an additional USB port. In Model A, A+, and the Pi Zero, the USB port is connected directly to the system on a chip (SoC). On the Pi 1Model B+ and later models the USB/Ethernet chip contains a five-port USB hub, of which four ports are available, while the Pi 1 Model B only provides two. On the Pi Zero, the USB port is also connected directly to the SoC, but it uses a micro USB (OTG) port.

* **Processor :**

The Raspberry Pi 2B uses a 32-bit 900 MHz quadcoreARM Cortex-A7 processor. The Broadcom BCM2835 SoC used in thefirst generation Raspberry Pi[20] includes a700 MHz ARM11 76JZF-S processor,VideoCore IV graphics processing unit(GPU), and RAM. The level 2 cache is used primarilyby the GPU. The SoC is stackedunderneath the RAM chip, so only its edgeis visible.. The Raspberry Pi 2 V1.2 wasupgraded to a Broadcom BCM2837 SoCwith a 1.2 GHz 64-bit quad-core ARM Cortex-A53 processor,[24] the same SoCwhich is used on the Raspberry Pi 3, but underclocked (by default) to the same 900

MHz CPU clock speed as the V1.1.

* **Performance :**

While operating at 700 MHz by default, the first generation Raspberry Pi provided a real-world performance roughly equivalent to 0.041 GFLOPS. On the CPU level the performance is similar to a 300 MHz Pentium II of 1997–99. The GPU provides 1 Gpixel/s or 1.5 Gtexel/s of graphics

processing or 24 GFLOPS of general purpose computing performance. The

graphical capabilities of the Raspberry Pi are roughly equivalent to the performance of the Xbox of 2001. Raspberry Pi 2 V1.1 included a quad-core Cortex-A7 CPU running at 900 MHz and 1 GB RAM. It was described as 4–6 timesmore powerful than its predecessor.

* **RAM :**

On the older beta Model B boards, 128 MB was allocated by default to the GPU, leaving 128 MB for the CPU.On the first 256 MB release Model B (and Model A), three different splits were possible. The default split was 192 MB (RAM for CPU), which should be sufficient for standalone 1080p video decoding, or for simple 3D, but probably not for both together. 128 MB was for heavy 3D, possibly also with video decoding (e.g. XBMC).But a week or so later the RPF released a new version of start.elfthat could read a new entry in config.txt (gpu\_mem=xx) and could dynamically assign an amount of RAM to the GPU, so the older method of memory splits became obsolete, and a single start.elf worked the same for 256 MB and 512 MB RaspberryPis.

* **Networking :**

The Model A, A+ and Pi Zero have no Ethernet circuitry and are commonlyconnected to a network using an external user-supplied USB Ethernet or Wi-Fi adapter. On the Model B and B+ the Ethernet port is provided by a built-in USB Ethernet adapter using the SMSC LAN9514chip.[39] The Raspberry Pi 3 and Pi Zero W (wireless) are equipped with 2.4 GHz WiFi802.11n (150 Mbit/s) and Bluetooth 4.1 (24 Mbit/s) based on the Broadcom BCM43438 FullMAC chip with no official support for monitor mode butimplemented through unofficial firmware patchingand the Pi 3 also has a 10/100 Mbit/s Ethernet port.

* **Video :**

The video controller can generate standard modern TV resolutions, such as HD and Full HD, and higher or lower monitor resolutions as well as older NTSC or PAL standard CRT TV resolutions. As shipped (i.e., without custom overclocking) it can support the following resolutions:

* **Special-Purpose Features :**

The Pi Zero can be used as a USB deviceor "USB gadget", plugged into another computer via a USB port on each machine. It can be configured in multiple ways, for example to show up as a serial device or an ethernet device. Although originally requiring software patches, this was added into the mainline Raspbiandistribution in May 2016.The Pi 3 can boot from USB, such as from a flash drive.Because of firmware limitations in other models, the Pi 3 is the only board that can do this.

* **Peripherals**

The Raspberry Pi may be operated with any generic USB computer keyboard and The Model 2B boards incorporate four USB ports forconnecting peripherals. Mouse.It may also be used with USBstorage, USB to MIDI converters, andvirtually any other device/component withUSB capabilities. Other peripherals can be attached through the various pins and connectors on the surface of the Raspberry Pi.

### Operating systems

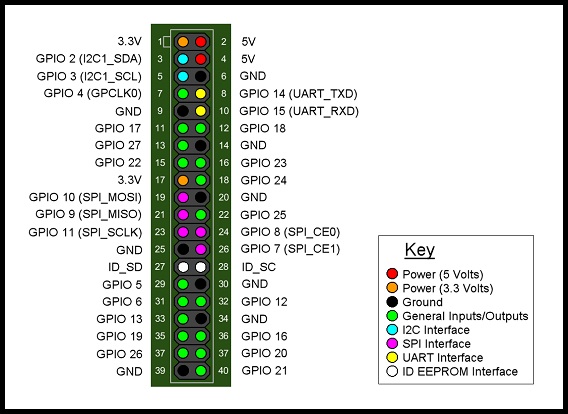
### The Raspberry Pi Foundation provides [Raspbian](https://en.wikipedia.org/wiki/Raspbian), a Debian-based [Linux distribution](https://en.wikipedia.org/wiki/Linux_distribution) for download, as well as third-party [Ubuntu](https://en.wikipedia.org/wiki/Ubuntu_(operating_system)), [Windows 10 IoT Core](https://en.wikipedia.org/wiki/Windows_10_IoT_Core), [RISC OS](https://en.wikipedia.org/wiki/RISC_OS), and specialised[media centre](https://en.wikipedia.org/wiki/OpenELEC) distributions. It promotes [Python](https://en.wikipedia.org/wiki/Python_(programming_language)) and [Scratch](https://en.wikipedia.org/wiki/Scratch_(programming_language)) as the main programming languages, with support for many other languages.Other third-party operating systems available via theofficial website include [Ubuntu MATE](https://en.wikipedia.org/wiki/Ubuntu_MATE), [Windows 10 IoT Core](https://en.wikipedia.org/wiki/Windows_10_IoT_Core), [RISC OS](https://en.wikipedia.org/wiki/RISC_OS) and specialised distributions for the [Kodi](https://en.wikipedia.org/wiki/Kodi_(software)) media centre and classroom management.

* **TYPES OF RASPBERRY PI MODELS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Pi Zero**  [https://upload.wikimedia.org/wikipedia/commons/thumb/b/ba/Raspberry_Pi_Zero_-_Location_of_connectors_and_ICs.svg/300px-Raspberry_Pi_Zero_-_Location_of_connectors_and_ICs.svg.png](https://en.wikipedia.org/wiki/File:Raspberry_Pi_Zero_-_Location_of_connectors_and_ICs.svg)  Location of connectors and main ICs of model zero  **Model A**  [https://upload.wikimedia.org/wikipedia/commons/thumb/b/be/Raspberry_Pi_1A.svg/300px-Raspberry_Pi_1A.svg.png](https://en.wikipedia.org/wiki/File:Raspberry_Pi_1A.svg)  Location of connectors and main ICs on Raspberry Pi 1 Model A  **Model B**  [https://upload.wikimedia.org/wikipedia/commons/thumb/c/c0/Drawing_of_Raspberry_Pi_model_B_rev2.svg/300px-Drawing_of_Raspberry_Pi_model_B_rev2.svg.png](https://en.wikipedia.org/wiki/File:Drawing_of_Raspberry_Pi_model_B_rev2.svg)  Location of connectors and main ICs on Raspberry Pi 1 Model B revision 1.2 |  |  |  |

* **General purpose input-output (GPIO) connectoR**

Raspberry Pi 1 Models A+ and B+, Pi 2 Model B, Pi 3 Models  A+, B and B+, and Pi Zero and Zero W GPIO J8 have a 40-pin pinout.Raspberry Pi 1 Models A and B have only the first 26 pins.



**Chapater 3: Digital image processing**

In [computer science](https://en.wikipedia.org/wiki/Computer_science), **digital image processing** is the use of computer [algorithms](https://en.wikipedia.org/wiki/Algorithm) to perform image processing on [digital images](https://en.wikipedia.org/wiki/Digital_image). As a subcategory or field of [digital signal processing](https://en.wikipedia.org/wiki/Digital_signal_processing), digital image processing has many advantages over [analog image processing](https://en.wikipedia.org/wiki/Analog_image_processing). It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of [multidimensional systems](https://en.wikipedia.org/wiki/Multidimensional_systems).

[](https://3c1703fe8d.site.internapcdn.net/newman/gfx/news/hires/2012/writinggraph.jpg)

## History

Many of the techniques of digital image processing, or digital picture processing as it often was called, were developed in the 1960s at the [Jet Propulsion Laboratory](https://en.wikipedia.org/wiki/Jet_Propulsion_Laboratory), [Massachusetts Institute of Technology](https://en.wikipedia.org/wiki/Massachusetts_Institute_of_Technology), [Bell Laboratories](https://en.wikipedia.org/wiki/Bell_Laboratories), [University of Maryland](https://en.wikipedia.org/wiki/University_of_Maryland,_College_Park), and a few other research facilities, with application to [satellite imagery](https://en.wikipedia.org/wiki/Satellite_imagery), [wire-photo](https://en.wikipedia.org/wiki/Wirephoto) standards conversion, [medical imaging](https://en.wikipedia.org/wiki/Medical_physics), [videophone](https://en.wikipedia.org/wiki/Videophone), [character recognition](https://en.wikipedia.org/wiki/Character_recognition), and photograph enhancement. The cost of processing was fairly high, however, with the computing equipment of that era. That changed in the 1970s, when digital image processing proliferated as cheaper computers and dedicated hardware became available. Images then could be processed in real time, for some dedicated problems such as [television standards conversion](https://en.wikipedia.org/wiki/Television_standards_conversion). As general-purpose computers became faster, they started to take over the role of dedicated hardware for all but the most specialized and computer-intensive operations.

* **Tasks**

Digital image processing allows the use of much more complex algorithms, and hence, can offer both more sophisticated performance at simple tasks, and the implementation of methods which would be impossible by analog means. In particular, digital image processing is the only practical technology for:

* [Classification](https://en.wikipedia.org/wiki/Statistical_classification)
* [Feature extraction](https://en.wikipedia.org/wiki/Feature_extraction)
* [Multi-scale signal analysis](https://en.wikipedia.org/wiki/Multi-scale_signal_analysis)
* [Pattern recognition](https://en.wikipedia.org/wiki/Pattern_recognition)
* [Projection](https://en.wikipedia.org/wiki/Graphical_projection)

Some techniques which are used in digital image processing include:

* [Image editing](https://en.wikipedia.org/wiki/Image_editing)
* [Image restoration](https://en.wikipedia.org/wiki/Image_restoration)
* [Independent component analysis](https://en.wikipedia.org/wiki/Independent_component_analysis)
* [Linear filtering](https://en.wikipedia.org/wiki/Linear_filter)
* [Neural networks](https://en.wikipedia.org/wiki/Artificial_neural_networks)
* [Partial differential equations](https://en.wikipedia.org/wiki/Partial_differential_equations)
* [Principal components analysis](https://en.wikipedia.org/wiki/Principal_components_analysis)
* [Self-organizing maps](https://en.wikipedia.org/wiki/Self-organizing_map)
* [Wavelets](https://en.wikipedia.org/wiki/Wavelet)

### Filtering Code Examples

### img=checkerboard(20);% generate checkerboardklaplace=[0-10;-15-1;0-10];% Laplacian filter kernelX=conv2(img,klaplace);% convolve test img withfigure()% 3x3 Laplacian kernelimshow(X,[])% show Laplacian filtered title('Laplacian Edge Detection')

**Chapter 4 :PUTTY SOFTWARE**

PuTTY is a [free and open-source](https://en.wikipedia.org/wiki/Free_and_open-source)[terminal emulator](https://en.wikipedia.org/wiki/Terminal_emulator), [serial console](https://en.wikipedia.org/wiki/Serial_console) and network file transfer application. It supports several [network protocols](https://en.wikipedia.org/wiki/Network_protocol), including [SCP](https://en.wikipedia.org/wiki/Secure_copy), [SSH](https://en.wikipedia.org/wiki/Secure_Shell), [Telnet](https://en.wikipedia.org/wiki/Telnet), [rlogin](https://en.wikipedia.org/wiki/Rlogin), and raw socket connection. It can also connect to a [serial port](https://en.wikipedia.org/wiki/Serial_port). The name "PuTTY" has no official meaning.

PuTTY was originally written for [Microsoft Windows](https://en.wikipedia.org/wiki/Microsoft_Windows), but it has been [ported](https://en.wikipedia.org/wiki/Porting) to various other [operating systems](https://en.wikipedia.org/wiki/Operating_system). Official ports are available for some [Unix-like](https://en.wikipedia.org/wiki/Unix-like) platforms, with work-in-progress ports to [Classic Mac OS](https://en.wikipedia.org/wiki/Classic_Mac_OS) and [macOS](https://en.wikipedia.org/wiki/MacOS), and unofficial ports have been contributed to platforms such as [Symbian](https://en.wikipedia.org/wiki/Symbian),[[5]](https://en.wikipedia.org/wiki/PuTTY#cite_note-5)[[6]](https://en.wikipedia.org/wiki/PuTTY#cite_note-6)[Windows Mobile](https://en.wikipedia.org/wiki/Windows_Mobile) and [Windows Phone](https://en.wikipedia.org/wiki/Windows_Phone). PuTTY was written and is maintained primarily by [Simon Tatham](https://en.wikipedia.org/wiki/Simon_Tatham).

## Features

## PuTTY supports many variations on the secure remote terminal, and provides user control over the [SSH](https://en.wikipedia.org/wiki/Secure_shell) encryption key and protocol version, alternate ciphers such as [AES](https://en.wikipedia.org/wiki/Advanced_Encryption_Standard), [3DES](https://en.wikipedia.org/wiki/Triple_DES), [Arcfour](https://en.wikipedia.org/wiki/RC4), [Blowfish](https://en.wikipedia.org/wiki/Blowfish_(cipher)), [DES](https://en.wikipedia.org/wiki/Data_Encryption_Standard), and [Public-key](https://en.wikipedia.org/wiki/Public-key) authentication. PuTTY supports [SSO](https://en.wikipedia.org/wiki/Single_sign-on) through [GSSAPI](https://en.wikipedia.org/wiki/Generic_Security_Services_Application_Program_Interface), including user provided GSSAPI [DLLs](https://en.wikipedia.org/wiki/Dynamic-link_library). It also can emulate control sequences from [xterm](https://en.wikipedia.org/wiki/Xterm), [VT220](https://en.wikipedia.org/wiki/VT220), [VT102](https://en.wikipedia.org/wiki/VT102) or [ECMA-48](https://en.wikipedia.org/wiki/ECMA-48)[terminal emulation](https://en.wikipedia.org/wiki/Terminal_emulator), and allows local, remote, or dynamic [port forwarding](https://en.wikipedia.org/wiki/Port_forwarding) with SSH (including [X11](https://en.wikipedia.org/wiki/X11) forwarding).PuTTY comes bundled with command-line [SCP](https://en.wikipedia.org/wiki/Secure_copy) and [SFTP](https://en.wikipedia.org/wiki/SSH_file_transfer_protocol) clients, called "pscp" and "psftp" respectively, and plink, a command-line connection tool, used for non-interactive sessions.PuTTY does not support [session tabs](https://en.wikipedia.org/wiki/Tabbed_document_interface) directly, but many wrappers are available that do.

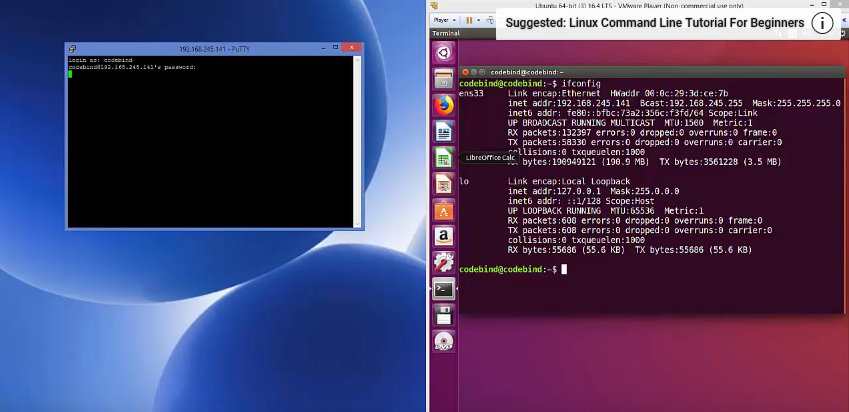
* **Components**

PuTTY consists of several components:

* PuTTY: the [Telnet](https://en.wikipedia.org/wiki/Telnet), [rlogin](https://en.wikipedia.org/wiki/Rlogin), and [SSH](https://en.wikipedia.org/wiki/Secure_Shell) client itself, which can also connect to a [serial port](https://en.wikipedia.org/wiki/Serial_port)
* PSCP: an [SCP](https://en.wikipedia.org/wiki/Secure_copy) client, i.e. command-line secure file copy. Can also use [SFTP](https://en.wikipedia.org/wiki/SSH_File_Transfer_Protocol) to perform transfers
* PSFTP: an [SFTP](https://en.wikipedia.org/wiki/SSH_File_Transfer_Protocol) client, i.e. general file transfer sessions much like [FTP](https://en.wikipedia.org/wiki/File_Transfer_Protocol)
* PuTTYtel: a Telnet-only client
* Plink: a command-line interface to the PuTTY back ends. Usually used for [SSH Tunneling](https://en.wikipedia.org/wiki/Tunneling_protocol#SSH)
* Pageant: an [SSH authentication agent](https://en.wikipedia.org/wiki/Ssh-agent) for PuTTY, PSCP and Plink
* PuTTYgen: an [RSA](https://en.wikipedia.org/wiki/RSA_(algorithm)), [DSA](https://en.wikipedia.org/wiki/Digital_Signature_Algorithm), [ECDSA](https://en.wikipedia.org/wiki/Elliptic_Curve_Digital_Signature_Algorithm) and [EdDSA](https://en.wikipedia.org/wiki/EdDSA) key generation utility
* pterm: a standalone terminal emulator

## Reception

## In 2009, Justin James of [TechRepublic](https://en.wikipedia.org/wiki/TechRepublic) cited its reliability, cost, cross-platform support, and features as positives. He faulted complex configuration, extended beta testing, and lack of support for scripting.J. Peter Bruzzese of [InfoWorld](https://en.wikipedia.org/wiki/InfoWorld) included it in his list of 15 Essential Open Source Tools for Windows Admins and wrote that its imitators are not as good.

[](https://www.bing.com/search?q=PuTTY&filters=ufn:%22PuTTY%22+sid:%221503b8fe-1d17-445f-35f8-85ae9a53cdbc%22&FORM=SNAPST)****

**Chapter 5: Observation result and conclusion**

**5.1 What I Learned From Industrial Training**

Python is a programming language and is a one of the preferred option today for any high performance computing. The syntax of the language is designed to be readable. In fact, one recent study has shown Python to be the most commonly taught programming language in U.S. schools and was ranked second in the Top 10 Popular Programming Languages in 2015.There is a Python framework for pretty much anything, from web apps to data analysis. Python is often heralded as the easiest programming language to learn, with its simple and straightforward syntax. This course will help you mater the skills of programming using Python . Python is a like PHP, Perl, Ruby and so much. It can be used for web

* Get the Basic and Advanced concepts in Python
* Implement Python core objects and file handling operations
* Learn advance analytics and data visualization using Python-pandas
* Build algorithms and Real life applications using Python
* Understand testing and debugging of multiple Python applicationsCurriculum
* **Python Introduction**
* **Core Objects and functions**
* **Core Objects and functions**
* **Python Modules**
* **Debugging**
* **Classes and Inheritance**
* **Regular Expression and Database interface**
* **Package Installation and XLS, JsonPrasing, Web Scraping**
* **Data Analysis and Data Visualization**

5.2 **Conclusion**

In this 15 days Industrial training we started from basics of python language.We learned how to do Programming using python language.We also done home automation using Raspberry pi such as Bulb , fan controlling.

Interfacing of Bluetooth module, RFID,different sensor to Raspberry pi. We have learned Image processing using openCV software and programming of image processing using python language. Used boards like Raspberry Pi and programmed using python language.Also done some practicals using raspberry pi board.

Done Interfacing of bluetooth module, RFID and different sensors with Raspberry pi and controlling them through IOT. Learned Basics of Image processing like changing color of image ,scaling of image,etc. Using different tools in image processing.Using different servers such as Apache and Gunicorn.

**5.3 Reference**

1. <https://www.google.com/search?ei=0jZXOe8K8TJvgTM5LCIBw&q=python&oq=pyt&gs_l=psy-ab.1.0.0i67l10.34185.34933..38083...0.0..0.128.356.0j3......0....1..gws-wiz.......0i71j0i131j0.Dl5rBpZ-SMU>
2. https://www.google.com/searchq=raspberry&oq=raspberry&aqs=chrome..69i57j0l5.13588j0j8&sourceid=chrome&ie=UTF-8
3. https://www.google.com/search?q=opencv&oq=opencv&aqs=chrome..69i57j0l5.4759j0j9&sourceid=chrome&ie=UTF-8
4. https://www.google.com/search?ei=SDd-XJvEGYHxvATMvbyAAg&q=amazon+web+services&oq=amazon+web+servi&gs\_l=psy-ab.1.0.0l10.4283.7815..10760...0.0..0.130.1061.4j6......0....1..gws-wiz.......0i71j0i67j0i10j0i131.OMhUVlhHGMk
5. https://www.google.com/search?hl=en-IN&authuser=0&ei=UDd-XNv1D8fC-gS1trxQ&q=putty+software&oq=putty+sotfware&gs\_l=psy-ab.1.0.0i13l10.39488.44937..47881...0.0..0.166.1978.0j14......0....1

|  |  |
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| Website | www.vedamlab.com |
| Company sector | Electrical Equipments And IT Solutions |
| Incorporation status | Pvt. Ltd |

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