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Task 1 [1.1, P1]**1. Introduction:**

In this technology era computers are everywhere, at school, college, hospital, banks, Fun Park etc. Different people uses computer for different purposes. Computer has become integral part of our life these days writes, Shelly, Freund, and Vermaat (2010). Further in this document role of computers in some major enviroments are briefly explained.

2. Computer in Bank:

Computer plays huge role in modern banking processes. From database management to customer services, computer has helped banking sectors nearly every sector. Some Roles of computers in banking environments are:



Figure 1 ATM Machine

a. ATM (Automated Teller Machine):

After introduction of ATM (Automated Teller Machine) (fig.1), customers can withdraw cash and inquiry their balance themselves from anywhere where system is installed. This helped customers to avoid long queues in bank to withdraw money.

b. Internet banking:

With help of this facility, client now can use their computers to access their bank account and check balance, transfer balance pay bill through internet. This technology helped both bank industries and customers as well to reduce time and costs.

c. Quick Calculation

Computer is virtually errorless and reliable so they helped banking industries with fast calculation and as they are quite reliable and precise the chances of getting error is so low hence it increases productivity of bank.

○ Some other important roles of computers in banking environment are:

1. Employee payroll
2. Database management
3. Project planning and record keeping
4. Surveillance to provide security
5. Communication with other banks

Computers in banking sector are usually mainframe and networked microcomputer and they usually have their own set of software for database management and calculation.

3. **Computers in Educational Environments:**

In educational environment computers have various roles to play from educational areas to administrative areas. Computers are used for keeping students information. Some software can help the school/college testing student's ability with applications like assessment testers, essay checker and online exams. Students also use computers for various activities such as for preparing reports, assessments, gaining information from internet, preparing presentation and preparing for exams.

"Plagiarism is as much a serious offense in the academic world as it is in journalism" (MASHABLE, 2012). Computers technology has enabled educational bodies to develop software that check plagiarism electronically. This helps them to keep these illegal activities away from education.

a. **Computer Aided Learning (CAL)**

Computer Aided Learning can be referred as computer assisted teaching and learning process where interaction between instructor and student takes place. Computers are used to supplement instructor teaching. Some of CAL based software's are PASS IT, Teaching Templates 2.3.0 etc.

b. **Computer Based Training (CBT):**

Computer based Training (CBT) can be described as environment lessons are delivered in recorded materials like CD ROM, DVD rom or USB drives or by Computer coached lesson. In these method computers takes the teacher rolls. Computer are responsible of managing learning and teaching program, monitor learner progress.

4. **Computers in Medical Environment (Hospitals) :**

Computers in medical environments are used for various purposes from administrative tasks to monitoring, diagnosis, report keeping or ever for treatment procedures.

a. **Surgical Robots:**

Da Vinci Surgical system, a robotic assistance made by Intuitive Surgical of Sunnyvale, calf has been adopted by hospitals of developed countries and are used for operations



Figure 2 Robot for medical purpose

like orology, gynecology, cardiology etc. (TELOVATION, 2009). Fig.2 shows an image of a robot that helps doctors in surgical process.

b. For Monitoring Purpose:

Hospitals use computers for monitor patient's progress report. They uses hybrid computers for monitor patients temperature, blood pressure, pulse rates etc. and keep eyes on them. Computers are also used in research areas for monitoring purpose.

c. Record Keeping:

A fast access to required data helps hospital to run faster and proper manner hence an electronic computerized database is required rather than the paper based database which is not that reliable. All Patients' information, employee's information and other information related to pharmacy stocks are kept in database. Generally every hospital has its own management software for database control.

d. Scanning/Diagnosis:

Computers embedded with machines like CT scanner or Ultra Sound Scanner is used to perform diagnosis an illness. These technologies assist doctors to identify the disease. These computers help to identify the level of cancer a patient has.

4. Computer in Non-Government Offices (NGO) and International-NGO:

In defining UNROL (2013), mentioned that NGOs are civilian based non-profit organizations also known as civil society organization, those works independently of government to support the public. There programs heavily depends on whether/geometrical Condition, Economical database. Informations are collected from different bases like from the media, donors, other NGOs, military informations and from public themselves where computer helps them to make things easier. These organizations uses computer for different purposes like follows:

- Email
- Database Management
- Text-Editing
- Managing Photographs
- Promotes programs through Social Networks
- VoIP Apps like Skype for video calls
- Intranet

Applications like Skype and google hangout helps them to communicate them to other NGOs and GOs. Similarly use of social networks and blogs helps them to promote them their program and help them find new donors. Nowadays NGOs have started using .ngo as their domain in their websites.

An INGO is similar to NGO but their working areas are broader, working in international level. Computer enables International NGOs to make contacts with their offices and sister organizations in various countries, Computer have enabled bigger possibilities in INGO sector. Other roles of computer in INGOs are similar to that of in NGOs.

5. **Computers for Software companies Specializing in various Operations:**

There are various Software companies specializing in various Operations. Their objectives are to develop new software for various fields and serve the world with better/improved technology; a good example of this is computer simulation developer.

Computer simulation can be defined in different ways. It can refer to a 3D graphics that represents a three dimensional object through the use of specialized software. In another way, computer simulation can also be referred to process emulation where function of one system is reproduced in another system (WISEGEEK, 2014).



Figure 3 Simulation Application

Some other areas where software companies are specializing are like ERP or CRM for CBS, Web-designing, web developing etc. Different types of computer are used by these companies and generally these computer are powerful than computers in home or school.

6. **Conclusion:**

In conclusion, computer has various important rolls in different environments. Computers are used in different environments like Banks, INGO/NGO, Educational Sectors and Software companies for different proposes but the main theme of using computer is to make life easier and get better result from the input efforts.

TASK 2[1.2, P2]**1. Introduction: Parts of Computers**

A computer is proper combinations of different parts that can accept data input process it and provide output or store them and for proper functioning of a computer, all parts of the need to operate properly. These parts can simply be divided into two categories,

- i. Hardware/Peripherals
- ii. Software

1.1. Hardware/Peripherals:

Term hardware can be referring as the electronic and electromechanical parts of computer that has physical existence. Hardware further can be categorized into two parts:

- i. Hardware Components
- ii. Input/output Peripherals

Some of the main hardware components of the modern computers are:

1.1.1. CPU:

The central processing unit of computer known as CPU is often referring as brain of the computer. CPU consists of three parts; Arithmetic logic unit, Control unit and registers. This component is responsible for processing logical calculation and is to execute instruction. The speed of a CPU is measured in GHz. In microcomputer CPU comes in form of a microchip and is installed into motherboard.

In fig.1 an Intel i7 series processor is shown.



Figure 4 Intel Core i7 Processor

1.1.2. Motherboard:

A motherboard (Fig.5) can be referred as the backbone of computer. As the name suggests, motherboard is a board where all the internal components of computer are installed. Motherboard is located inside box called casing and it consist slots where every other hardware can be attached in such way that they can work properly.

All external peripherals of computers either it be input or output are connected to motherboard.

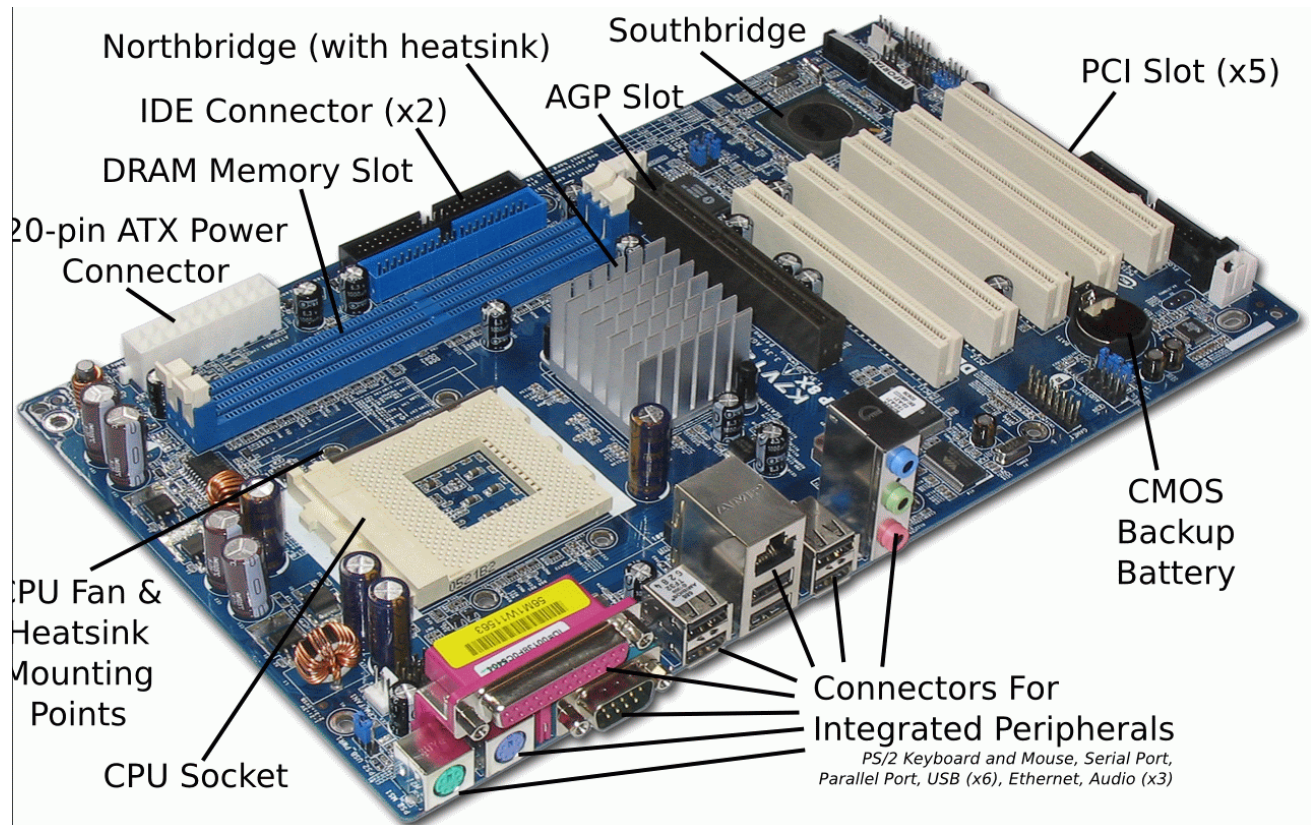


Figure 5 Motherboard

1.1.3. Memory:

Memory is the component where data is stored either temporarily or permanently. Memory is measured in KB/MB/GB and TB. There are two types of memory and can be termed as:

1.1.3.1. Main Memory:

Main memory can be referred as the physical component which is used for executing instruction either in temporary form or permanent form. These memories are directly accessed by CPU. Main Memory can be further categorized into RAM and ROM and Cache Memory.

- **RAM:** RAM stands for RANDOM ACCESS MEMORY and used for running task on them as processor cant access to Hard disk/Secondary memory directly, Files are loaded on RAM first and it runs there. Every program we run, every file we open is run in RAM. Hence having larger size RAM help running several file and program same time with ease. RAM size can



Figure 6 RAM AND ROM

be increased by installing extra/larger size memory sticks into the motherboard. Modern computer has 1-16 GB of RAM.

- ROM: ROM stands for READ ONLY MEMORY. It is memory where instruction are stored that are required to boot a computer and comes as chips that are integrated in motherboard.

RAM is volatile whereas ROM is Nonvolatile. In fig.6 typical image of RAM card and ROM chip is shown.

- Cache: These memories are smaller and faster than RAM and used for linking RAM with Processor. Some file are loaded into cache memory that are required to be launched quite often and upon instruction are executed faster than when it's loaded in RAM.

1.1.3.2. Secondary Memory and Backing Storage:



Figure 2, HARD DISK

Secondary Memory is device where large data can be stored and have characteristic of non-volatile and re-writable. Internal Hard disk (fig.4) is most common example of secondary memory. This memory is not directly accessed by CPU of the computer. Every document we store in computer is stored in Secondary memory and when we access them

some amount of data is loaded into main memory and then we can see the content.

Similarly backing storage are those peripherals that are required to back up our data. These types of memories have portable capabilities. Some examples of backing storage are External hard disk, CD/DVD/Blu-ray disks; flash drives etc. where we can save application files or personal documents. Increasing Secondary memory size helps us to store large amount of data.

1.1.4. Power Supply Unit:

Power supply unit is the hardware component from where whole computer and its components get the power supply. Generally power supply unit (fig.6) is located inside a small box in modern pcs. Motherboard is connected to power supply unit and from where all other components get power. Power supply unit converts Alternative current from home line to Direct current which is required to run computer.



Figure 3 PSU

1.1.5. Graphics Cards:



Figure 4 GRAPHICS CARD

A Graphics card (fig.6) is a device that converts data into digital image hence it is responsible for the thing we see in monitor (pantherproducts.co.uk 2014). There are two types of graphics card available these days. 1. APG (Accelerated Graphics Port) 2. PCI express

AGP cards are more of older type of technology whereas PCI express cards are modern that only released few years ago.

There are so many factors that determine a good graphics card. Some of those factors are:

- Anti-Aliasing
- Anisotropic filtering
- Refresh Rate
- Memory Size

People prefer different types of graphics cards for different purposes like for gaming, animation, simulation development etc. Modern computers come with GPU integrated in their motherboard but those are not that powerful enough to play heavy games or perform works like animation design etc. So use of good graphics card becomes essential.

1.1.6. Cooling System:

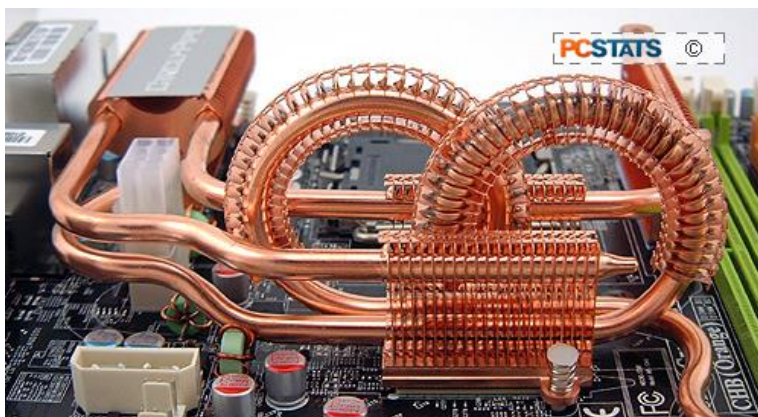


Figure 8 Heat Sink



Figure 9 FAN

To remove excess amount of heat from computer generated by different hardware component cooling system is used. Generally there is 2 type of cooling system available that helps to keep computer under normal temperature.

- Heat sink and Fan:




When talking about normal PC/Laptop, Heat Sink (fig.8) and Fan (fig.9) is used to keep computer cool. This system works on simple process where Heat sink is connected to the chip and when chips get hotter, heat is transferred to the heat sink and then Fan blows out the excess heat generated. There are three type of FAN: CPU fans that are prevent CPU from overheating, Case Fan that helps to cool whole surrounding inside computer case and hard drive fan which is used in system where large amount of heat is generated due to large number of hard disk usage (NMBTC, 2013).




- Liquid Cooling:

When fan is used for normal type of computer heavy computers with larger hardware components requires alternative of fan so liquid cooling is used and this type of cooling is also known as water cooling (Wilson, 2006). This type of cooling process is based on thermodynamics; liquid is used to cool the computer. This system is more efficient than fan cooling system.

1.2. Input Peripherals:

Term input peripheral is referred to the hardware components that are used for sending data into the processing system. These inputs are processed in the computer as according to the user's instruction. Modern PCs has many input devices, Such as shown in table below:



Keyboard		Keyboard is set of different alphabetical symbol, Numbers and other Symbols and is used for typing text and number into the word processor. Keyboards are also used for playing game.
Mouse		Mouse is used for selecting, moving or pointing items in computer by clicking on it. Cursor in the screen move when we move mouse in the surface.
Mic		Mic is an input device which is use for sending computer sound signal. It is used for video calls and other recording purposes.





Scanner		Scanners are used for inputting paper document or images into computers. A scanner converts hard copy into soft copy.
Camera		Camera is device that is used for inputting video into computer by capturing them. They are used for several purposes like video calling, security and for capturing moments.
Joystick		Joystick is set of different key like keyboard but this one is specially designed that can come in our palm quite easily. Joysticks are mainly used for gaming purposes. Other use of joysticks are controlling machines, robots, toy cars etc.

Some of the other input devices are digitizer, tab, light pen, pointer, barcode reader etc.

1.3. Output Peripherals:

Output peripherals are those devices which output the result after processing them in computer. Result can be anything like display, sound or in printed form. Some of the popular Output devices are shown in table below:

Monitor		Monitor is used for showing the tasks computer doing, in video form. It is used for viewing what we are doing in computer. Everything we do in computer we see it through monitor.
Printer		Printer is a device that converts softcopies of document into the hardcopy that has physical existence. Printers are used for printing texts, images on the paper or other materials.

Speaker		Speakers are used for playing sound. Computer outputs sound signal through speakers. We use speakers for listening music, calls etc. Speaker also shows errors through beep sound.
Projector		Projectors are video outputting device which uses light beams to form image in surface. Projectors are used to form display larger than of monitors. It is used in presentations, church etc.
GPS Display		GPS displays are used for showing location according to the global positioning system. It shows the output of the GPS tracking computer.
Plotters		Plotters are similar to the printers where difference is they are machine that prints vector graphics. Plotters are used for printing engineering and architectural images.

Some devices works as both input and output peripherals such as USB drives, Fax machines, modem, optical drives etc.

2. **Software:**

Software can be referred as the meaning full set of instruction that machine understands. Mishra (2012) states software is stored in storage device of computer in digital form that when required they can use them. Software is required for operating computer hardware and completing other task according to user's request. Computer hardware can't perform any task without command of related software. Hence Software is also referred as soul of the computer.

2.1. **System software:**

System software is basically the main program that is needed to operate a computer. It is a complete set of programs that a computer needs to run in proper manner. System software like windows or



Linux or any other operating system recognizes the basic input and output devices like mouse, keyboard and monitor. Fig.10 shows logos of some famous operating systems.

System software is set of 3 types of programs and they are:

1. System control programs which controls and manages the execution, storage and processing of resources.
2. System Support Program which support the other software that user uses such as copying, moving, deleting etc.
3. System development program which are used for developing other applications. Example of such programs are programming language translator such as java, C, C# etc.

Some examples of system software are:

- Microsoft windows
- Ubuntu
- MAC
- Unix
- Red hat

2.2. Application Software:

Application software is designed to run under system and use has direct access to it. Every application has specific tasks to perform and these applications are installed on computer. Some examples of this type of software are Photoshop, games, Avira anti-virus. There are two types of application software:

1. On-the shelf application software:

These are software that can be downloaded and installed in computer. This software has specific tasks to perform such as word processing, spreadsheet, graphics editing etc. These software can be used anywhere like in office or office. Examples of this software are shown in fig.11:

- Microsoft Word
- Photoshop
- CorelDraw
- Power DVD
- Microsoft Excel



- Norton

Figure 11 Some Application Software

2. Be-spoke (Custom) Software:

This software is built for specific company or user and has ability to perform specific task that the user may desired like record keeping, payroll management etc. These are custom designed software and have everything that a company may want to have in their software. Examples of this kind of software are library management software, banking software, school/college management software etc.

2.3. Embedded software:

Embedded software is program that is required to run devices or machines. Embedded software is used in mobile, car, aircrafts, robots, security appliances. This software is designed for specific hardware and written on chips.

2.4. Utility Software:

Utility software is designed for assuring user to utilize the computer with most efficient way. It helps user with detecting errors, clean useless data, defragmenting hard drive, cleaning antivirus etc. A utility software help to prevent system disaster, data loss, system failure etc. It increases the life of the system and help to increase productivity of computer. Uses of this software are:

- Various anti-virus software
- Disk Defragments
- Disk cleaning
- Registry cleaning/Defragmenting
- Deleting Junk files and Privacy file

Fig.1 shows a screenshot form Uniblue utility app that enhances computer performances.

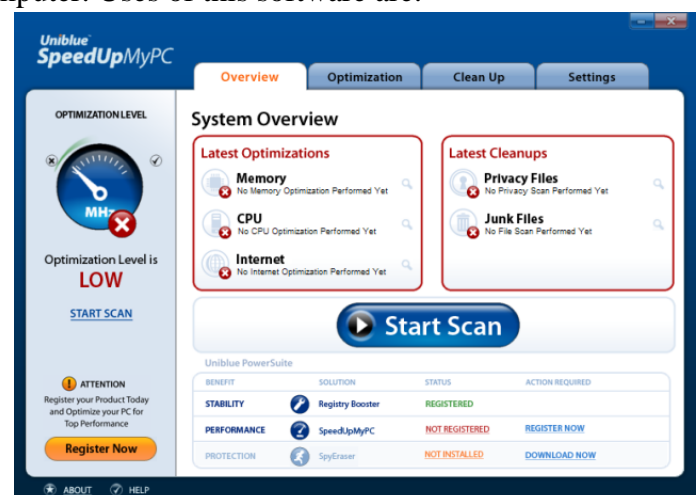


Figure 12 (Uniblue Utility Software)

TASK3 [1.3, P3, M1]

1. **Types OF Computer**

Computers can be classified on the basis of functionality, Size and Brand. Further in this document, different types of computer on the basis of different parameters are mentioned and explained about

their feature and application areas.

2.1. Classification based on Function:

2.1.1. Analog Computers:

Characteristics: Analog computers (fig.1-1) are that who solves the problem on continues change of physical quantity like pressure, electrical potential or mechanical motion (Not operating on binary numbers 1s and 0s) (Jha (2007)).

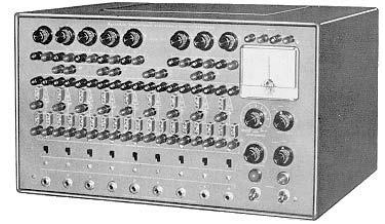


Figure 5 Analog Computer

Analog Computer is a computing machine that works on continuous range of physical values. An analog computer generally deals with physical variables such as voltage, temperature, pressure, Speed etc.

Application Areas: Torpedo Data Computer, differential analyzer, Mechanical computer, Water integrator are some example of analog computers.

2.1.2. Digital Computers:

Characteristics: Digital computers (fig.1-2) operates on digital data such as numbers, it uses binary system. Digital computers are designed in such way using digital circuit that input or output has only two levels that are either 1s or 0s. These computers operate under the control of internally stored program.

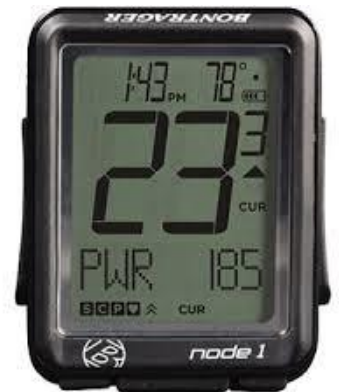


Figure 6 Digital Machine

These computer displays output in form of text or images, And has ability to take digital input. Some characteristics of digital computer are automatic, accuracy, memory and flexibility (Pradhan, N.D).

Application Area: Most computers designed these days are digital computer. According to TPUB (N.D), people generally use digital computers for business and scientific data processing. Such as record keeping, Accounting, Industrial use, Science or word processing.

2.1.3. Hybrid computers

Characteristics: Hybrid computers are combination of systems that are capable of accepting input and outputting in form of both digital and analog signal Baral (N.A). Hybrid computer feature combination of digital as well as analog computers.

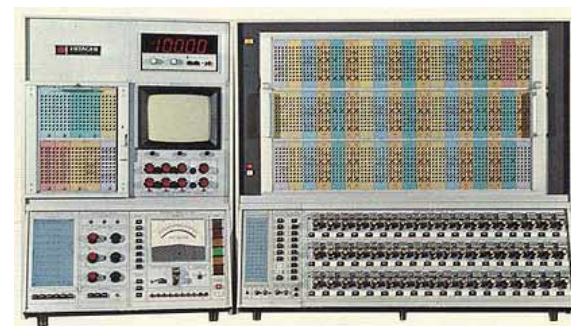


Figure 7 Hybrid Computer

These computers work in moderate speed compared to the analog computer.

Application Areas: Examples of these computers are instruments in hospitals that checkups patient's temperature and convert it to digital signal to show results in monitoring machine. Another good example is digital blood pressure checker. Other application areas are scientific research, engineering Lab (fig.1-3) and Industrial control Unit etc.

2.2. Classification of computers based on its Size:

2.2.1. Super Computers:

Characteristics: According to TECHTERMS (N.D), super Computers are most powerful and expensive computers built today. They have high processing speed and high precision as well as very high input/output capabilities. The speeds of Super Computers are measured in FLOPS (Floating Point Operations per Second).

Application: Super Computers mainly used for high calculation intensive tasks such as Weather forecasts, scientific researches and defensive oriented applications. Some good examples of these computers are NEC-500, CRAY XMP.

2.2.2. Mainframe Computers:

Features: Mainframe Computers (fig.1-4) are multi user, high performance and multi programming computers. They handle high level of workload of many users and have very high speed as well as have very high storage capacity (Anita Goel, 2010). These computers are very powerful and are used to centralize database.



Figure 8 Mainframe Computer

Several microprocessors are used to make this machine very fast.

Modern's mainframe computers are too far powerful and have very high storage capacity as compared to earlier generation of its kind (Jha, 2007).

Application: Main frame Computers are mainly used in banks or company where lots of user access to same data. These computers are host to the other computers through network where data resources are shared. Mainframe computers are second on the list of computer based on size and performance. Some good examples of these computers are IBM ES000 Series, CDC 6600 and VAX 800.

2.2.3. Mini Computers :

Features: These computers are useful to provide multiuser system environment and distributed data processing networks. These computers are more powerful (high processing speed and storage) as compared to microcomputer. And have capability to support 4 to 200 users simultaneously. Users can use either desktop or terminals to access the system. These computers support high speed printers, high end terminals are classified as extremely task oriented Computers.

Application Area: Mini computers are generally used in real-time application in industries and research centers. Example of these computers is (fig.1-5) PDP (Program Data Processor).



Figure 9 Mini Computer



2.2.4. Micro Computers:

Feature: It is smallest in the category of computer based on size and is less expensive compared to other class of computers (Princeton, N.D). These computers are digital and general purposed and often known as Personal computers. Micro computers can execute programs to provide several processing task. These computers are consisting of microprocessor that is combination of arithmetic and logic system.

Application: Microcomputer in modern days are used everywhere in day to day life. In home, college, hospital or everywhere somehow microcomputers are being used. These computers are generally designed for one user. Though these computers are stand-alone computers, they can be connected together to create network and share resources. Apple Macintosh, Acer laptops or Dell Desktops are good example of these computers.

Micro Computer computers include desktop computers, handhelds, smartphones, laptops and netbooks. Some of common microcomputers are shown below in the table:

Desktop PC		These are computer that sits on top of desk so called desktop. These are personal computers and have separated input, output and processing Units.
------------	---	--

Laptops, Notebook, Netbooks		These are portable computers that have integrated keyboard and display. Size and performance of these computers varies.
Smartphones, Handhelds		These computers have no keyboards but have sensitive display that acts as both input and output.

2.3.Classification Based of Brands:

I. IBM Computers

This type of computer is manufactured by IBM, a company from USA. Microcomputers developed by IBM Company are called IBM-PC. IBM pcs are reliable, durable and have better quality but they are costly.

II. IBM Compatible Computers

IBM compatible pcs are computers that can run the same software as an IBM PC. These computers work on principle and function of IBM computer. Difference is these computers are manufactured by other companies. IBM compatible pcs are computers that can run the same software as an IBM PC (webopedia, N.A.). In early day's computer buses in these types of computer used to be same as that of IBM pcs. People even referred IBM compatible pcs as IBM clones or PC clones. Majority of market of personal computer is occupied by these types of computers. These PCs are used everywhere from home to business.

III. MAC/Macintosh Computers

Computers manufacture by apple Inc., a manufacturing company of USA are known as apple/Macintosh computers. These computers are different than that of IBM pcs in both aspects of hardware and software. Software designed for IBM pcs does not support MAC/ Macintosh and vice versa. For these computers Apple Inc. develops own software and hardware. These computers are

more used and favored by professionals works in publishing house or works in graphics and animation fields due to their quality of graphics output. Mac computers are expensive with respective other computer types.

3. Comparison between different operating system:

Operating system (OS) is combination of software to manage computer hardware and resources. It is system software that provides basic services of computer user. Basically it provides user a platform to interact with computer. It is essential part of computer and is needed by application software to work. Operating system manages all application programs.

TECHTARGET (2007) states, operating system manage the input and output of hardware like printer scanner, optical drives, external hard disks etc. Users interact with operating system in two ways, Command line or Graphical User Interface (GUI). There are several operating systems available in market. Some of famous operating systems are:

- Windows
- MAC OS X
- LINUX
- DOS

I have selected three different operating systems to discuss comparison of them; Windows, MAC and LINUX.

3.1.Windows:

Windows is operating system developed by Microsoft. With largest part of market under them windows is most popular operating system worldwide (UKSHINI, 2012). Earlier started their journey based on MS-DOS and now they have many versions like Windows XP/ Vista/ 7/ 8/ 8.1 etc.

Features: Windows are famous for their familiarity and large number of software support. Windows generally run on IBM compatible pcs and can also runs on Macintosh pc with help of VM software. This is close-source operating system.

3.2.MAC OS X:

This OS is developed by Apple Inc. and 2nd most famous operating system. It has very appealing interface with many programs that integrate tightly into the system.

Features: This operating system runs only on Macintosh Computers. Many specific programs are

developed for this operating system. Software that runs on other operating system generally does not support Mac but nowadays this issue is being reduced. Like windows, Mac is also close-source operating system.

3.3.LINUX:

Other operating system I am going to take for comparisons is LINUX. Term Linux is generally used for collection of Linux DISTROS (distribution).

Features: Its popular OS for server but desktop based system is also getting popularity mainly due to the fact that these are open-source operating system. Hence operating system and software are free of cost and free to modify and distribute. Generally it doesn't run software developed for windows but software like wine can help to run many windows based software on LINUX.

Below in this report I have discussed the comparisons between three different operating system based of some of key features, Pros., and Cons.

1.1.Security:

When comparing security in operating systems, Linux will be on top of the list. It generally has no virus. It does not mean virus proof but being open source and less market area there is fewer viruses developed for this operation system.

Windows's main cons can be said is security. As its most popular operating system it's always targeted by attackers. There are lots of viruses developed for this operating system. But later version of windows like window 8.1 has excellent security system. Feature like windows defender, firewall has been improved than earlier versions to improve security. Alternatively user can install third party utility tools like Norton anti-virus to improve security of the computer.

In Mac, viruses are rarely found and may be the fact that it has fewer customers it is being less attacked by hackers or attackers.

1.2. Stability and Reliability:

When talking about crashes, again Linux wins the race. It rarely crashes comparing to its counterparts.

Mac crashes are not that often but it does happen. Generally when running non apple approved apps like adobe flash, it occurs (FALADE, 2012).

Windows have some crashing issues but when running genuine apps and with proper security system this rarely happens. Later versions of windows are improved in this aspect too.

1.3. Cost and support for user:

Windows and Mac being close-source OS cost fair amount of price where as to use LINUX you do not need to pay a single rupees. User can download them and install free of cost.

Apple has its own support centers, so does a window have. Being popular OS in market user can easily find both online and offline supports. But again windows user can have support more easily. Whereas Linux support is also available through online forums, sites etc.

1.4. Hardware:

To run Mac legally, they can only be installed on Macintosh computers. These computers are powerful.

Linux needs list hardware configuration to run. It can run on old 256 MB RAM installed system.

Windows OS run on basically any system that matches its minimum requirements. There are large numbers of manufacturers that are developing computers for windows like Dell, HP and Acer etc.

1.5. Ease of management:

In this department windows basically is on top due to its user friendly direct design. It's easy to learn. It is comfortable of user of home or business whereas LINUX can get complicated. Linux OS can be said are developed or advance users and non-technical user can find lots of complications.

1.6. Software Library:

Windows being most popular among all it has millions of software that are games, other applications, business application, utility applications etc. Mac and Linux have little software compared to windows but they have alternatives of which software they can't support. Linux has alternative software package of Microsoft office. Similarly Mac has its own version of Microsoft office. Vast majority of games and applications only run on Microsoft windows.

1.7. Device driver:

Again here windows have upper hand. Hardware manufacture generally develop device driver for windows. But Linux also has same level driver support as of windows. They both can support hardware from many manufacturers.

Mac OS runs on Apple Macintosh computers which makes their device driver capability smaller.

1.8. Ability to customize:

Windows users can easily customize the user-interface for a unique, individual experience. This features so limited in some manner for Mac users and for Linux user there is very limited room for customization for user experience.

In all windows user can change wallpaper, change fonts and brightness etc.

2. Window OS for Home users:

There are several version of operation system that is available for home users. Some of them are windows 7, 8 and 8.1. Users can have many benefits of using these windows at home. Some of the key features of window for home users are:

- Modern UI Experience
- Malware Resistance
- Web browsing
- Speed
- Capability
- Search and organization
- Multi-tasking

In my view these features, familiarity, size of hardware and software support makes windows best for home users.

2.1.Windows OS for business users:

- In business world windows has ruled for long time. It has published many versions of windows intended for business users. Some examples are: Windows Server 12 R2, Windows Server 08, Windows 8.1 Enterprise and pro etc. Some features of 8.1 Pro are: Domain and group policy, BitLocker and EFS, Hyper-V, Windows to Go, Remote Business Data Removal, Malware Resistance and Security.

3. Linux for Home and Business:

Linux is one of the best operating system available in the market and it's free and open sourced. But for home user this OS is not suitable if user is not computer expert. I understood, Linux is little complicated that other windows. And it does not support much software and games as well. Saying

that it has many good features and its popularity is growing.

For business purpose Linux is not suitable in my view as there are many software compatibility issues. And as chances of personal computer users using other operating system are high, companies prefer to use OS that are compatible with clients system.

4. Mac for Home and Business:

Mac Operating system has gained reputation of good stability and less attack of virus/malware. But MAC pcs are generally expensive so home user do not prefer them especially when it does not support many famous software and games.

For business purpose the main problem is software issue. It has limited number of hardware support. Though less chances of virus makes them popular among some group in business world

5. Conclusion:

In this report, I compared three most popular operating systems available for computers. Then I discussed about which OS is more appropriate for both home and business users. Each operating system has own features, strength and weaknesses. We found Linux is very reliable operating system though it's less popular among their counterparts. Similarly Mac PC is famous but has many issues like hardware and software and software compatibility. But still user prefers them due to their great looks and services.

Windows Operating system found to be best operating system due to their features, services and familiarity among users. They support large number of software and hardware and excellent for both home and business use. Being said that it's all up to user's preference they may find mac or Linux more appropriate for their needs.

TASK 4

1. Introduction:

Mike Hargreaves is a client of SAILPAL INTERNATIONAL and works in Media Department of Dell. As his work involves developing promotional materials like poster, graphics and animation he requires a multimedia computer. According to his work need his computer should be high tech graphics and sound. Now I have to produce system specification of a multimedia hi-tech computer

that can satisfy his need.

2. Hardware:

2.1.Motherboard:

A good motherboard is essential for a good computer hence Jetway HI09-Z is most suitable motherboard we have. These supports up to 16 GB RAM. Other thing about this motherboard is it has hi-tech inbuilt sound that can satisfy Mike's need. Also this system board is inbuilt NIC card.

2.2.RAM:

A 4 GB RAM seems appropriate for this system. As he needs to run multiple applications at once and do animation related tasks.

2.3.Processor:

Inter i5 processor is mid-level processor. It's good to have i5 processor than going for entry level i3 processors. I5 processors integrate well with modern graphics card hence increases performance.

2.4.Hard Disk:

Mike need to store large number of images and other work related data. And these files occupies large space hence a 2 GB internal hard disk is suitable.

2.5.Fan/cooling system:

For this system a Deepcool Copper Base 120mm Fan with its own heat sink is suitable for this system and compatible with selected motherboard.

2.6.Case:

Cooler Master (FOR-500-KKN1) is compatible with selected motherboard. This case has excellent air flow space and ventilation. Has enough number of front and back panel ports.

2.7.Monitor:

A large monitor that support large resolution is required hence LG IPS LED Monitor (22EA53) 21.5 inch monitor is suitable.

Graphics Card:

To work with animation and graphics editing tools a good graphics card with large VRAM is required. Hence NVidia Graphic Cards (GTX650-E-2GD5) with 2GB of size is suitable.

Mouse and Keyboard:

Mouse and keyboard should be comfortable as Mike may need to work for long time. Also wireless

device helps to keep place managed hence Logitech K230 keyboard and Portronics Bean mouse is appropriate for his satisfaction.

Camera:

Mike needs a good performance camera for his graphics and poster purpose. Hence Nikon D5100 SLR camera is suitable for his need. This camera gives excellent image capture. This camera has high resolution output and there is large number of lenses available according to his need.

Scanner:

Epson Perfection V33 color scanner is excellent scanner that produce high level output hence Mike's need of scanner to capture printed image into computer can be done.

External Drive:

As this client need to back up large number of data a 1 TB Adata Dash drive HV610 External is suitable. This comes with 3.0 USB so faster data transfer helps faster backups.

Printer:

To print graphics and promotional posters an excellent color printer is needed hence we have HP OFFICEJET 7110 Wide which gives excellent print output.

Speaker:

To utilize hi-tech sound quality that motherboard produce a hi-tech speaker is required hence I have selected Creative SBS A520 5.1 channel speaker which gives excellent sound output. This speaker is also suitable for animation purpose.

Software:

Required Software according Mike's needs are listed in Software Specification.

Task 5

1. Introduction

For the optimal performance and compatibility with Mark's needs, below in this report hardware system is recommended and alternatives are suggested. Available options are compared basically on price, performance and suitability.

Hardware

Motherboard:

Alternative: ECS A960M AMD motherboard can be good alternative for client's system if he decides to go with minimum requirement but not with optimal performance. These motherboards are chipper and give good performance but only support. This is a good alternative for non-intel processors.

Recommended

The IT denotes (N.D.) states, some of the key features of Jetway HI09-Z as follows.

Intel Z68 Express Chipset

- Intel Z68 Express Chipset is the first product to enable performance tuning with access features of 2nd generation Intel Core processor family.

Rapid Recover Technology (Intel RRT)

- This can be used to quickly recover a system if hard drive fails or if there is data corruption.

Serial ATA3

- Enhanced data protection and data accessing performance
- Serial ATA 3 GB/s thus higher disk performance

Debug Port/The Professional Hardware Diagnosis System means no more bugging by unknown system failure and no more time wasted

3D Audio Technology

- Enhanced bass effect under the 100MHz range
- True-to-life simulated feeling
- 8-Channel HD Audio CODEC

Large Memory Capacity

- Dual Channel DDR3 memory technology
- Max.16GB

Fast Ethernet LAN

- PCI-E Gigabit LAN

Recommendation: Jetway HI09-Z motherboard is excellent motherboard with latest features and supports most of the latest and powerful Intel processors and DDR3 RAM. This platform delivers the most flexibility and performance providing all the tools necessary to customize PC experience. Jetway HI09-Z is best suited for client's needs.

RAM:

Recommended: Corsair (CMZ4GX3M1A1600C9) 4GB

Key Features (corsair, N.D)

- Compatibility with 2nd generation (Sandy Bridge) Intel Core processor Guaranteed to work on all dual channel Intel platforms
- Attractively low price
- Supports the Intel XMP (Extreme Memory Profile) Newegg (N.D)
- World famous Corsair reliability and performance
- Optimized for Compatibility with the Latest CPUs and Motherboards

Recommendation: Corsair Vengeance (CMZ4GX3M1A1600C9) is DD3 RAM, latest in the available RAM's category. Just enable XMP on compatible motherboard and you'll automatically get optimized performance. A 4 GB of Corsair (CMZ4GX3M1A1600C9) is well enough for Mark's needs. He need to perform multitasks, and use several apps like Photoshop and Microsoft office etc. having 4 GB RAM can enhance user experience and performance.

Processor:

Recommended: Inter i5 processor is more suited for this high-tech system. This is mid-level processor and comes with whole loads of features. Some key features according to Intel (N.D) are as shown in below.

Essentials

- Clock Speed: 3.1 GHz
- Max Turbo Frequency: 3.3 GHz
- Cache: 6 MB
- Instruction Set: 64-bit

Memory Specifications

- Max Memory Size: 32 GB

- Memory Types: DDR3-1333/1600

Excellent Internal Graphics

- Processor Graphics: Intel® HD Graphics 4600
- Intel® Clear Video HD Technology: Yes

Advanced Technologies

- Intel® Turbo Boost Technology: Yes
- Intel® Virtualization Technology (VT-x): Yes
- Intel® Virtualization Technology for Directed I/O (VT-d): Yes
- Intel® VT-x with Extended Page Tables (EPT): Yes
- Enhanced Intel Speed Step® Technology: Yes
- Thermal Monitoring Technologies: Yes

Gizmodo (N.D), turbo Boost makes your computer faster when it needs it. This can save energy and gives extreme performance when needed. With this system can easily support multiple operating systems if Client wishes too. Intel® Virtualization Technology (Intel VT) enables to utilize the complete and extensive computing power of their hardware processors (TECHOPEDIA, N.D).

Alternative

AM3 ATHLON II X2 250 is energy efficient multi-core processor. This processor can satisfy clients need with better energy saving and reducing heat, noise. This cost very chip prices of RS.5000.

Recommendation

Intel Core i5-4440 Processor is excellent processor, with technologies like Turbo Boosts and HD graphics. 6 MB of large cache ensure smooth performance and it is compatible with the motherboard I recommended for this system. This processor is excellent for animation with graphics processes and compatible with windows 8. CPU world (N.D) suggests, even if it costs 3 times more than AMD AM3 ATHLON II X2 250 performances is unmatched. Intel I5 processor beats AMD AM3 in all categories expect price. Since processors are something people do not upgrade quite often and is one time investment, I recommend going for Intel i5 processor but if client decides for lower price, AMD AM3 is good choice.

Hard Disk:

Recommended:

2 TB Seagate SV35 internal hard with a rotational speed of 7200 rpm and a 64 MB cache, the ST2000VX000 is well prepared for its intended use. The 2TB capacity is provided by 3 magnetic discs (HARDWARELUX, N.D). Some key features are:

- Cost Effective
- Enhanced data Storage, High Capacity storage
- SATA 6 GB/s
- 64 MB cache and improves microprocessor capabilities
- Seagate ACUTRAC technology

Alternatively, 1 TB Seagate SV35 is also suitable of this system. With all features are same as except data storage capacity than the recommended one, 1 TB hard drive is good enough.

But as Mark need to store large amount of data, a 2 TB of hard disk is more suited. Seagate ACUTRAC technology enables reliable read/write performance even in challenging operating environments. This hard disk comes with 1 year warranty and priced at RS. 8,000.

Case:

Cooler Master (FOR-500-KKN1) is recommended for this system. Some of the key features of this computer case according to COOLERMASTER (N.D.) are follows.

- USB 3.0 port (10x faster file transfer)
- Compatible with virtually any PSU
- Tool-free system for ODDs, card reader and HDDs
- Supports latest motherboards and have place for graphics cards
- Affordable price

This computer case supports the other recommended components, motherboards and PSU. Additional HDD slots mean it can hold large number of extra HDD if client later wants to upgrade his system. Case has beautiful looks, strong body and priced at RS. 5,000. These cases come with 1 year warranty.

Optical Drive:

Recommended:

LG SATA_GH24NS50 24X DVD+R internal is fast and very cheap optical drive and recommended for this system. Client need to back up large files, here LG optical drive can come handy or while installing software. Some of key features are as follows (THEITDEPOT, N.D).

SECURDISC Technology

- SECURDISC is an innovative technology giving users the means to protect and share data securely.

SATA Interface

- Enhance computing platform with easier integration and better performance.

24X DVD±R Write Speed

- Back up media with ultra-fast 22x DVD+R burning.

This optical drive can surely fulfill clients need and help his job. With priced only at RS.1500 this drive is best value product.

Monitor:

Recommended: LG IPS LED Monitor (22EA53) 21.5 is widescreen monitor that performs extremely well for multimedia and graphics design purpose. It supports 1920*1080 resolutions. Some features are (LG, N.D):

- 21.5 inch wide screen (large screen for better graphics design)
- Smooth color change
- Life like picture
- Wide angle view
- True Color Pro

True Color Pro is LG's exclusive software that makes accurately adjusting your monitor's color settings simple. With all these features LG IPS LED is excellent recommendation for this system.

Alternate: Client can also go for touch monitor that can assist him in graphics designing. Touch LG T1910B-SN is good choice touch monitor with accurate touch capture. These monitor can fast draw with finger itself. But these monitors lack the image quality of LG IPS and extremely expensive.

Graphics Card

Alternative: NVidia GeForce GTX 670 is one of the highly famous cards and cost just around \$400. It has excellent performance and built for heavy animation and gaming (PCMAG, N.D). If client do not bother about price and want to go for best, this can be best alternative.

Recommended: NVidia Graphic Cards (GTX650-E-2GD5) 2GB

- Key features (ASUS, N.D):
- Defeat heat for cards that run 15% faster and last 2.5 times longer than reference
- 25% longer graphics card longevity resists dusts
- Modify clock speeds, voltages, fan performance and more, all via an intuitive interface
- Power-plug free cards just motherboard power
- NVIDIA PhysX ready
- GeForce CUDA Support

NVidia Graphic Cards (GTX650-E-2GD5) 2GB can produce maximum of 2048 x 1536 resolution which is well enough for larger monitors, client need. Though it's an entry level card, it fit well into the clients need. It has great performance compare to other cards in same price region. Puget systems (N.A.) suggest, Photoshop CS6, gives enhanced performance with dedicated graphics like GTX650.

Suggested alternate is far better than this one but paying RS. 40000 for graphics card only can be useless. NVidia Graphic Cards (GTX650-E-2GD5) 2GB costs only RS. 12000 and has 1 year warranty.

Mouse and Keyboard:

Recommendation: I recommend Logitech K230 wireless keyboard and Portronics Bean mouse for this system. Logitech K230 gives enhanced performance and is comfortable in use (Logitech, N.D). Alternatively other good keyboard and mouse of Sony or dell can be used.

External Hard Drive:

Alternative: Toshiba CANVIO 1TB USB 3.0 is alternate to HV610. It costs silently higher than the one I recommended that is RS.9000 and only has 2 year of warranty.

Recommended: 1 TB Adata Dash drive HV610 is an eye-catching stylish hard drive powered with USB 3.0 high speed data transfer capacity. Some of the key features of HV610 are as follows (Adata-group, N.D).

The Power of USB 3.0

- USB 3.0 interface is improved by nearly ten times compared to USB 2.0, substantially reducing the required transmission time by as much as 70% (HOWTOGEEK, 2014).

LED Status Indicator

- Activity status is indicated by a stylish LED light. This feature helps to ensure data transfer without looking at the monitor.

System Support

- Windows XP, Windows Vista, Windows 7/Mac OS X 10.6 or later/Linux Kernel 2.6 or later

Recommendation: USB 3.0 uses two unidirectional data paths, one to receive data and the other to transmit while USB 2.0 can only handle only one direction of data at any time. This window 8 compatible 1TB external hard drive is suitable of client's need to storing large number of data at fast speed. Unlike alternate one this external drive is priced at RS. 7000 and comes with excellent 3 year warranty.

PSU (POWER SUPPLY UNIT)

Recommendation: The VS450 delivers a guaranteed 450 Watts of continuous power (TECHBUY, N.D). This PSU is great choice for system with lower power demands, but you still demand the compatibility and reliability that Corsair is known for. Low noise, high efficiency is other feature of this component. With 3 year warranty VS450 is perfect choice for this system.

Clients Need and System

Mark's work involves developing promotional materials like poster, graphics and animation he requires a multimedia computer. Since he demand a hi-tech multimedia computer, the above listed hardware components are well suited for performing task like his job. His requirements, current market situation, price, performance etc. were kept in mind during recommending each component.

To give client more option, alternate components are also proposed. If client decides to go with the recommended specification, this computer system can full-fill his need and give excellent performance.

TASK 6 [3.1, P6, D2]

1. Work Place Setup

Before starting to build and configure computer system, setting up the work place is essential to insure better health safety and better work environment.

- i. Wear anti-static wrist strap
- ii. Place your computer on a rubber mat or other non-conductive surface.

- iii. Have 1 plus and 1 minus screw driver.
- iv. One small magnet to collect the screw

2. Connect and Setup

Monitor

Monitor used: Dell 17 inch LED

To **connect Monitor** I carried out following steps.

- a. **Setup** space for placing computer and Monitor
- b. Place **Monitor** on table and turn the monitor **back panel** side.
- c. In back panel, feed **power cable** and **SVGA/HDMI/DVI** cable.
- d. Connect **power cable** to power supply. Make sure of proper grounding.(Figure1)
- e. Connect video cable to computer.
- f. Press **power** button **ON**.
- g. **Start** computer.
- h. **Adjust** resolution, brightness and display setting. **Finish**.

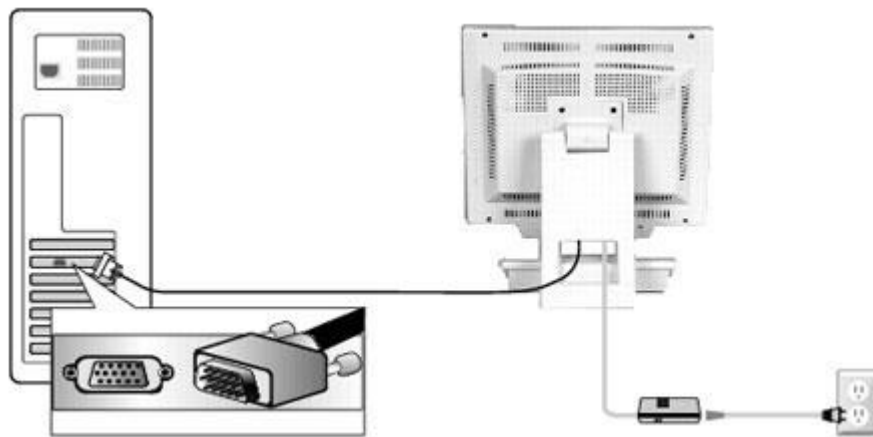
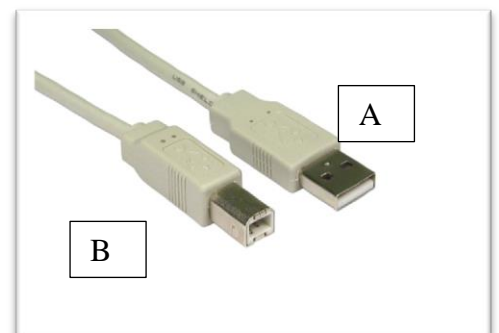


Figure 1 MONITOR CONNECTION

Printer

Printer Used: HP office Jet Pro L7700

- a. Place printer from where USB cable can reach the computer.
- b. Download HP Printer install Wizard for windows from HP's official site.
- c. Run the program.(Figure2)



- d. Now grab the USB A to B cable and feed (B) end to printer and (A) end to computer. **(Figure3)**
- e. Click Next on Wizard program. Let the scan process end. **(Figure4)**
- f. Select the printer and click next.
- g. Let the driver download finish.
- h. After completing wizard to view the newly installed printer go to control panel then Hardware and sound and select Devices and printers. **(Figure 5)**
- i. There is New HP office Jet Pro L7700 printer listed. Set it as default if needed.
- j. Finish.

Figure 2 USB A to B cable

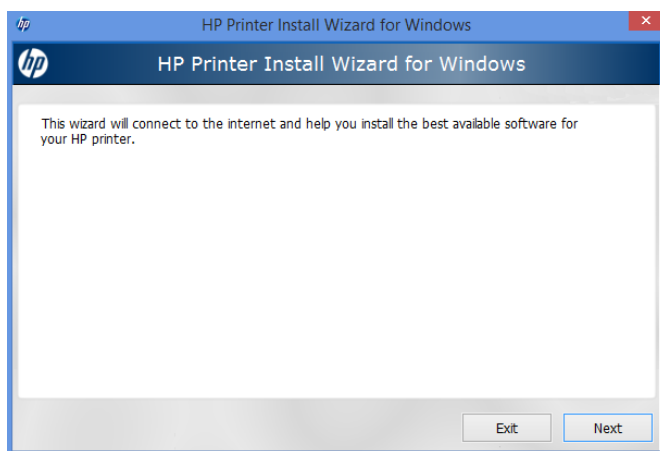


Figure 3 Devices and Printers

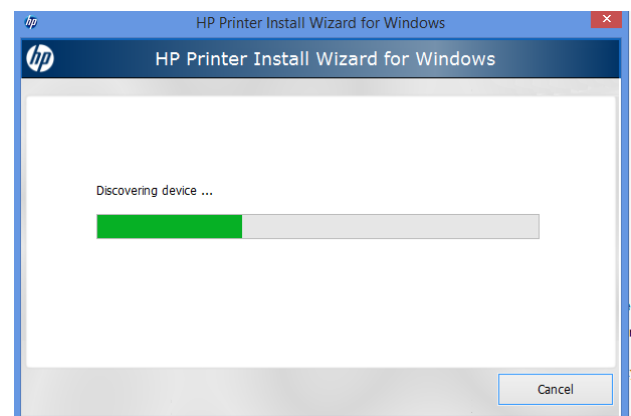


Figure 4 Devices Scan

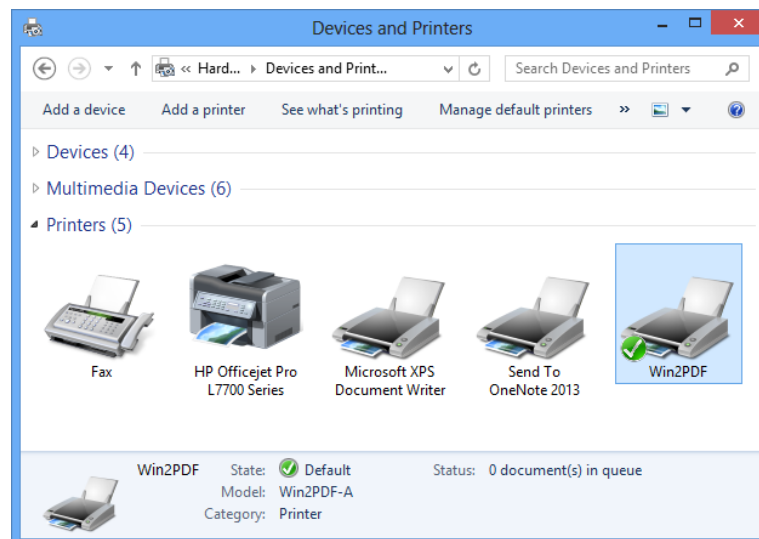


Figure 5 HP Printer Install Wizards

Modem/Router

Modem used: NETGEAR

ADSL modem DM 602

- a. Make sure Computer has RJ45 Port either inbuilt or NIC card.
- b. TCP/IP networking installed



- c. Ethernet Patch cable.
- d. Connect the modem to computer using USB or Ethernet cable. Connect **power supply**.
- e. Connect cable from ISP provider to modem using **RJ45**. (Figure 6)
- f. Install modem driver from provided CD/DVD.
- g. Complete the PPPoE **authentication** process. Provide login name, password, and service name in **setup new connection or network** under **control panel**. (Figure 7)

Figure 6 Ethernet Cable with RJ45

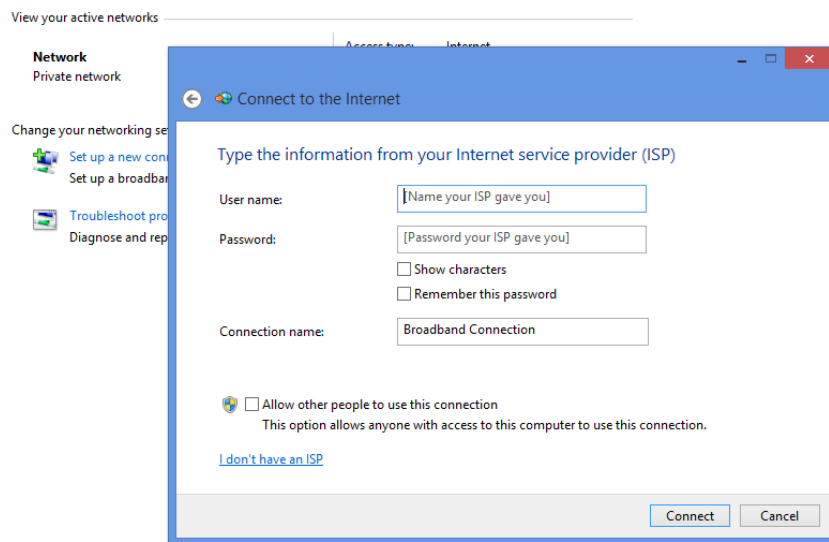


Figure 7 ISP LOGIN

- h. Open any web browser and type **192.168.0.1** and login into modem setup page using username and password. Default admin/public
- i. Select **yes** to 'Does your internet connection requirement'.
- j. Provide **login** credential.
- k. **Restart** computer.

Speaker

Speaker Used: 2.0 Stereo Dell Speakers

- a. Place the **speaker** on suitable place. Make sure cable is large enough to connect to computer.
- b. Grab the **1/8'** jack (Figure 8) and **feed** it into **line out (speaker)** port either **front panel** or **back panel**. (Figure 9)
- c. **Connect the Power supply. Press On**

- d. Manage sound level using wheel on speaker or from computer.

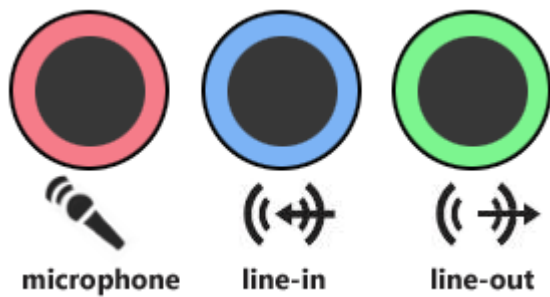


Figure 9 10Speaker/MIC port



Figure 8 Speaker and 1/8 jack

3. Hardware Component Installation

Graphics Card

To install PCIe Graphics card I performed following steps.

- a. **Manage** the workplace as mentioned above in this report.
- b. **Unplug** and then Open the computer case and collected the screws using magnet.
- c. After opening the case, Search for **PCIe slot** in the motherboard to ensure it supported the card to be installed. There was X16 size slot which is PCIe slot as shown is figure 10.
- d. Open the **back panel** case to install graphics card
- e. Now **align** the video card to the PCI Express slot. Consider the **Notch** position.
- f. **Insert** the card's connector to PCIe slot (Fig.11)
- g. Once card is firmly in the slot connect power cables to the card
- h. Replace the PCI bracket and screw it back down and close the case.
- i. Plug it to **power source**.
- j. Now Startup the computer.
- k. To **install the driver**, if there is driver CD, insert and install the driver.
- l. If there is no driver CD, download it from vendor's site and install it.
- m. Customize the appropriate resolution.
- n. Restart computer. Done

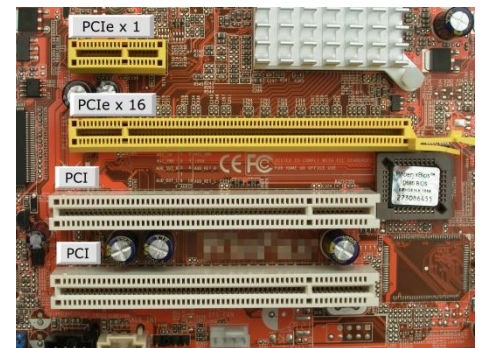


Figure 110 PCIe slot

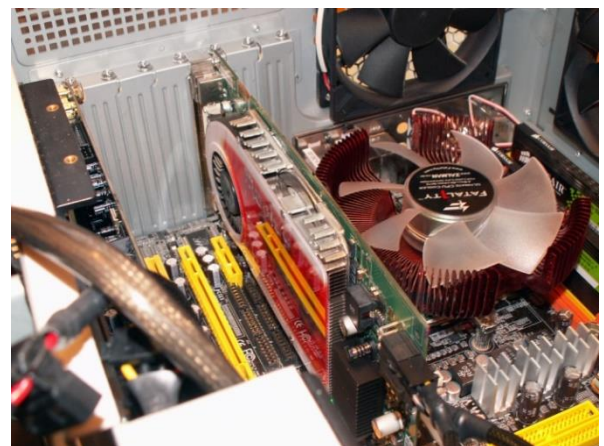


Figure 11 Graphics Card Installation

RAM

To Install RAM I performed following Steps.

- First I visited motherboard's manufacturer's website to understand the type of RAM it supports. It was DDR2.
- Manage the workplace as mentioned above in this report.
- Align the RAM to RAM slot in motherboard.(Fig12)
Consider the notch position.(fig 13)
- Insert the RAM into slot. (fig.14)
- Made sure its side clips are locked
- Once all other component installed and computer runs press windows + pause break keys to check system properties. Check RAM status is OK.
- RAM installation complete.



Figure 12 RAM slot



Figure 13 RAM and Notch

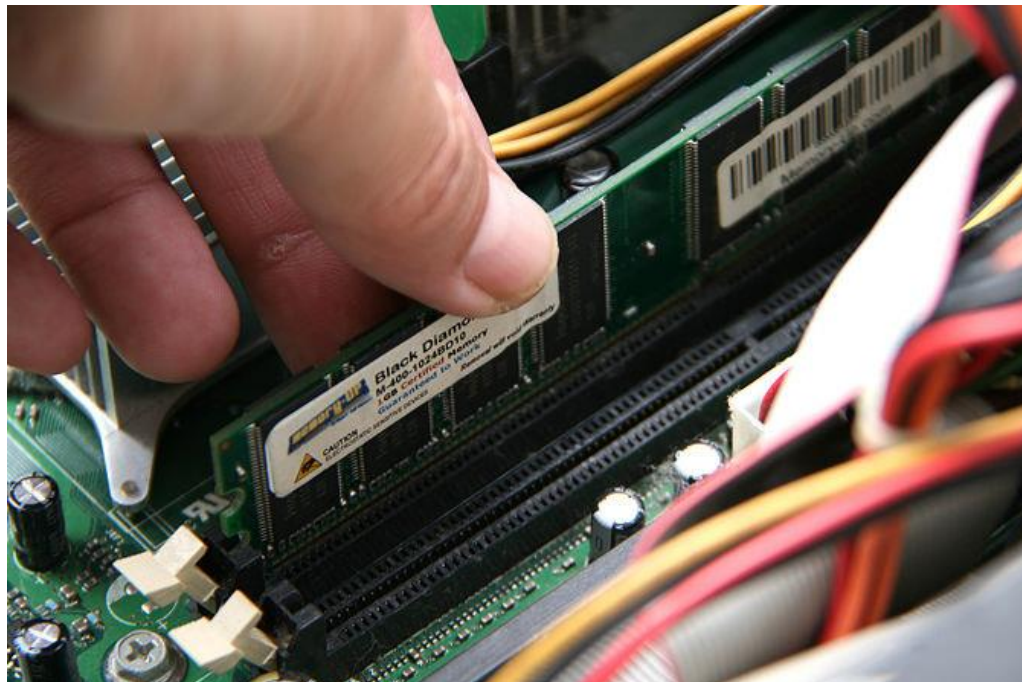


Figure 14 RAM INSTALLATION

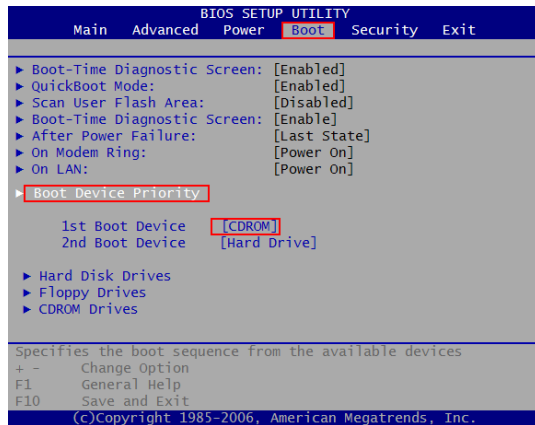
4. Software Installation

Windows 8

Windows to be installed: Windows 8

To clean install windows 8 I performed following steps.

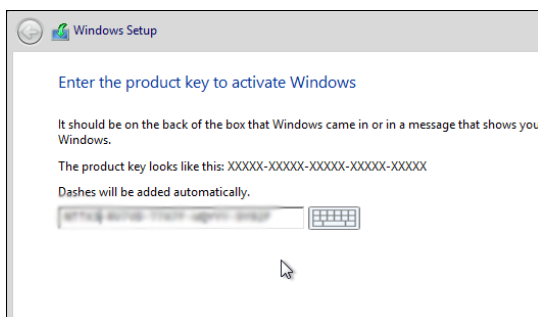
- a. Startup the Computer and Enter to Bios setup page pressing 'Del' key
- b. Under Boot section select first Priority to CD. Press F10 to save and exit
- c. Now insert the bootable Windows 8 DVD into DVD drive and restart computer
- d. Computer will boot from Windows 8 DVD with screen
- e. In the next page set your language, time and currency format, keyboard or input method according to need. (fig.14) Press Next.
- f. In this page click Install Now. Setup process will start.
- g. In the next page enter the product key came with windows 8 DVD as shown in Fig's. Press Next
- h. In this page Tick the accept license box and click next
- i. Since we are doing clean installation, in this page select custom installation
- j. Choose the Drive where windows to be installed. To create new partition click new and set the size.
Fig.
- k. Click on Apply, Ok then select the partition and click next.
- l. Now Installation Process will start (Fig.) and computer will restart automatically once installation is done.
- m. Once computer start following page with few messages will start up. Fig.
- n. In the next page Set PC name and color as shown in fig.
- o. Next page allows setting customization; here I went with use express setting.
- p. In the next page select appropriate account. Either create local account or choose Microsoft account.
This account will be used for login into the PC. Fig.
- q. To create local account select local account and in the following page give account name and password.
- r. Press FINISH.
- s. Now setup will finalize the installation automatically. This will take few minutes.
- t. Once these process finish, installation complete and presented with metro user interface.
- u. Windows 8 is installed.



Step vi



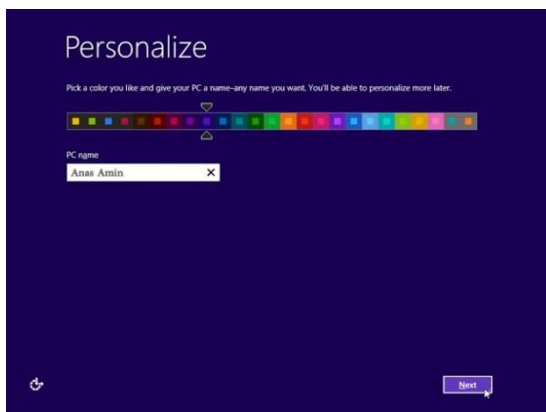
Step v



Step iv



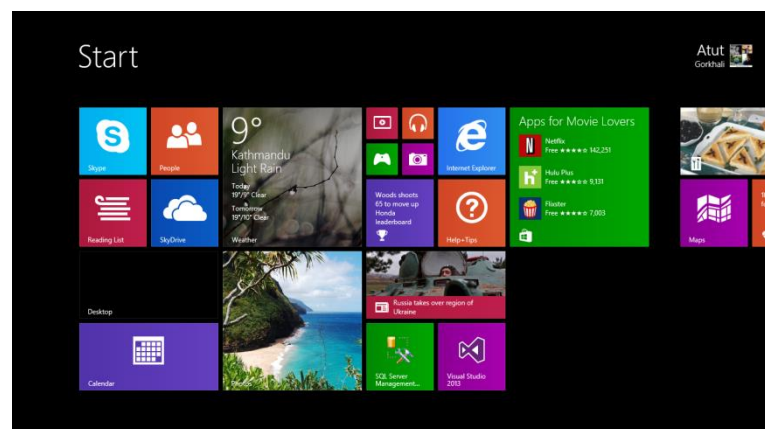
Step iii



Step ii



Step i

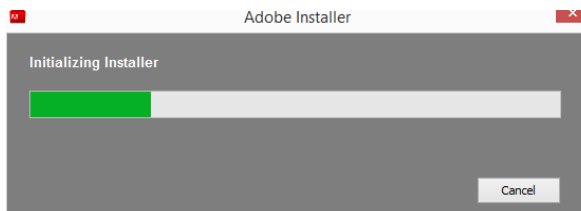


Step vii

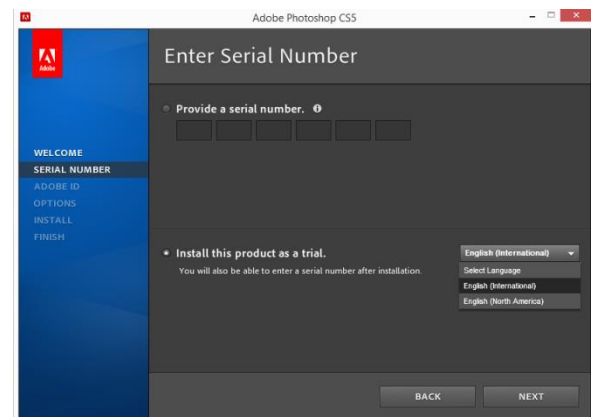
Adobe Photoshop

To install Photoshop CS5 perform following Steps.

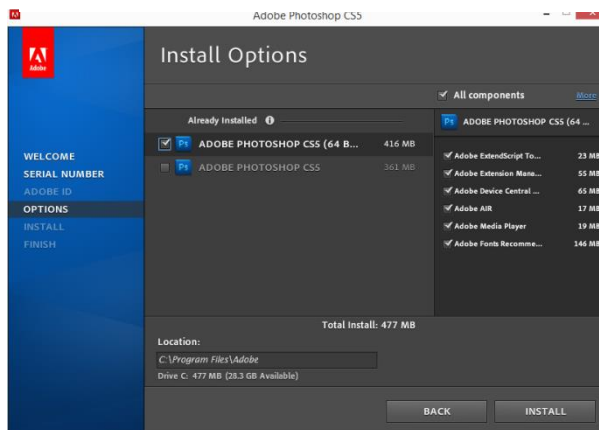
- Insert the DVD into optical drive. Explore the Drive and double click Setup.exe
- Once the installation initialization finishes, in the next page click 'Accept' to accept the license agreement.
- In the next page, Provide the serial Number came along with Photoshop DVD. Alternatively there is trial option too.
- Select the language and click next.
- In this page, select required components. Click Install.
- Once Installation complete, click done.
- Photoshop cs5 is installed.



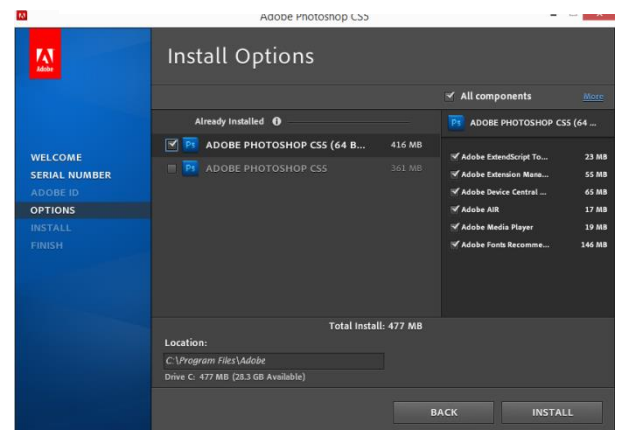
Step 1



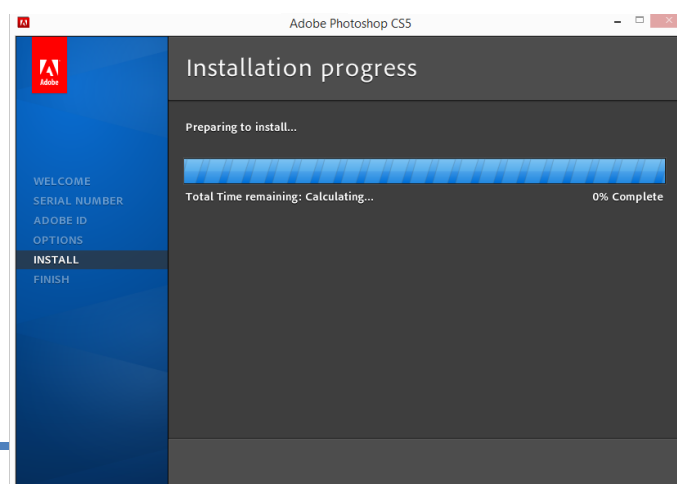
Step 2



Step 3



Step viii

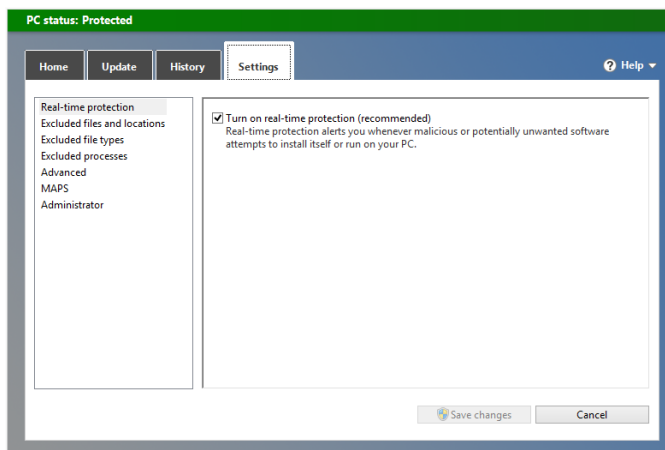


Step 5

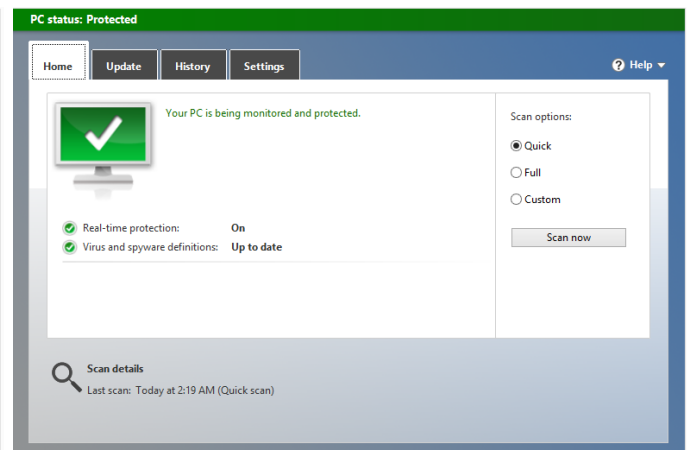
Configure Windows Defender

Windows Defender is pre-installed anti-spy/malware in windows 7 and later versions. It prevents viruses if regularly updated and properly configured. To configure windows defender, proceed following steps.

- (In windows 8) In the start Menu type 'defender' and select 'windows defender' from the list.
- Once the windows defender starts go to setting tab by clicking on it.
- In the option Real-time protection, tick the Turn on tick box.
- In the administrative option tick the Turn on tick box.
- Leave the other options to default and click Save changes, if required click ok to authenticate.
- Now under Update tab, click update to update virus and spyware definitions.
- Once the update complete windows defender configuration is complete and windows is safe from viruses.



Screenshot 1



Screenshot 2

5. Settings According to Mike

Hargreaves requirements:

Set Bios Password (TO MrABC)

To perform bios password setup I performed following steps.

- Start the computer and go to bios setup pressing Del key.
- Select Bios setting password option (as shown in fig)
- Set password to MrABC



Screenshot 3

- d. Press f10 to save the password and exit.
- e. Done.

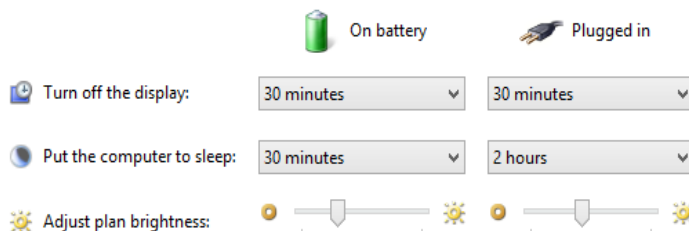
Power Management turn off display (after 30 min) when away

Perform the following steps to Configure Power management.

- a. (In windows 8) In search menu, type power option and select power option.
- b. Under power option page, click change power setting of the plan that is to be used.
- c. In this page, set turn of display time to 30 minute (Screenshot 4).
- d. Click save changes. Done

Change settings for the plan: Power saver

Choose the sleep and display settings that you want your computer to use.



[Change advanced power settings](#)

[Restore default settings for this plan](#)

Save changes

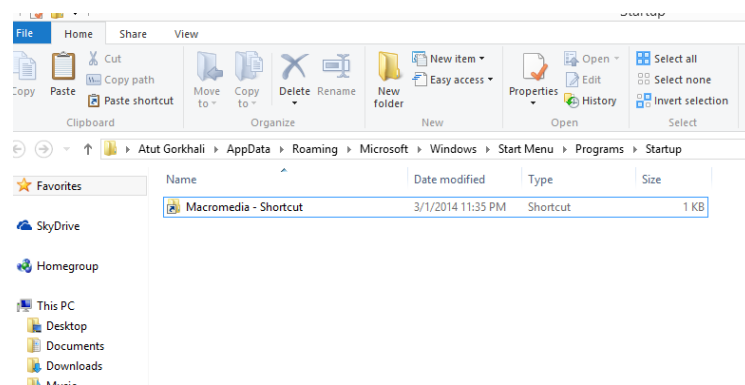
Cancel

Screenshot 4 Power Management

Startup option: load Macromedia Suite folder

To load Macromedia suite Folder automatically after the windows startup, a shortcut of macromedia folder is need to be places inside startup folder. Perform following process.

- a. (In windows 8) Press windows + R key to open run menu.
- b. Type Shell: STARTUP
- c. Now inside startup folder right click and select new then shortcut.
- d. Now browse the Macromedia folder location and click next.
- e. Once the shortcut is created, setting is done (Screenshot 5).
- f. Every time windows starts, Macromedia folder



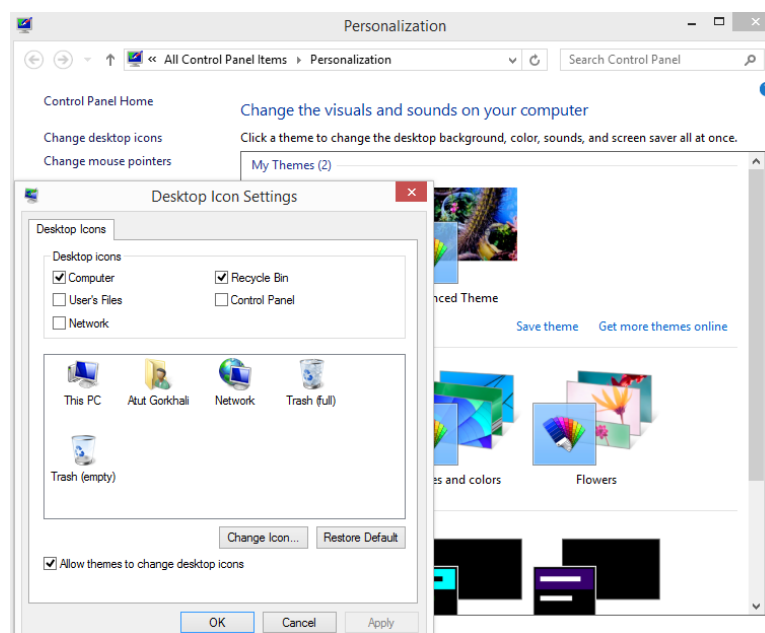
Screenshot 5 Macromedia Folder Shortcut

will AutoOpen.

Edit Desktop Setting: Display “My Computers” on desktop

To Display ‘My Computer’ Desktop performs following steps. (Based on Windows 8)

- a. Right click on the desktop and select personalize.
- b. From the sidebar select Change desktop Icons.
- c. Tick the desktop in the check box.
- d. Click Apply and then ok. Done.



Screenshot 6 Desktop Icon Setting

6. Troubleshooting Software installations failure:

1. Verify administrative access
2. Recheck serial number / code correctly
3. Check the system requirements
4. Check Disk space
5. Check internet connection before Software Update
6. Reinstall Software
7. If still problem occurs, files may be corrupt try another DVD or download another copy of software.

TASK 7 [3.2, P7]**System Testing**

In this report several hardware and software tests are done. During test process, I used tools like device manager and msinfo32 to check whether hardware is working as expected and find if there is any failure. DXDIAG also can be useful tool. First let's look at how these tools can be accessed.

Device Manager

To go to Device Manager follow these steps.

- Press **Windows + R** keys together to go to **RUN** menu.
- Inside Run menu type **DEVMGMT.MSC** Ok
- Done (Fig.1 Device Manager).

MSINFO32

To open MSINFO32 go to run menu and type msinfo32 and press OK. Done (Fig.2)

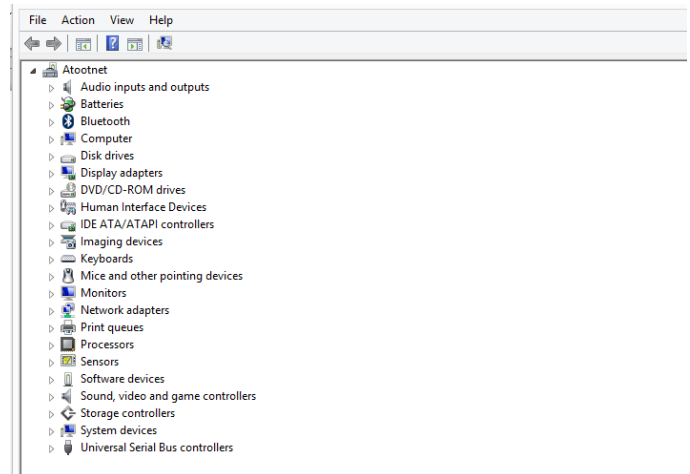


Figure 1 Device Manager

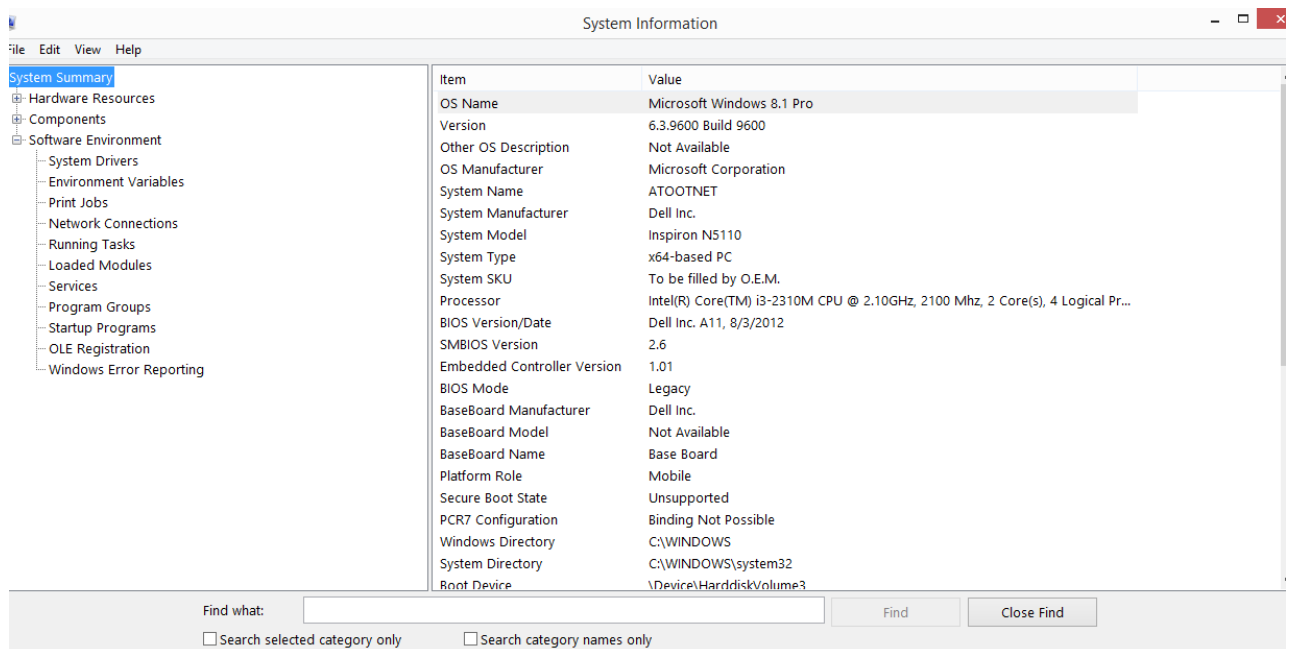
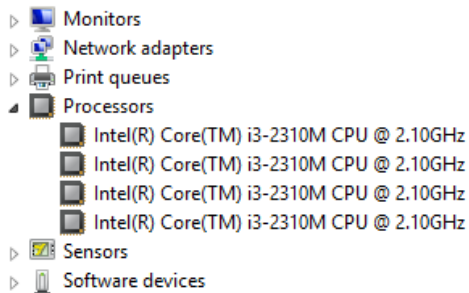


Figure 2 MSINFO32

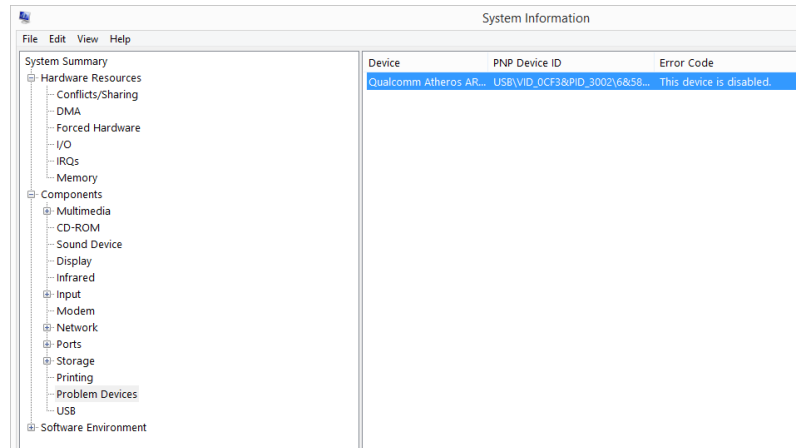
DXDIAG

Type DXDIAG in run menu and press ok. Done

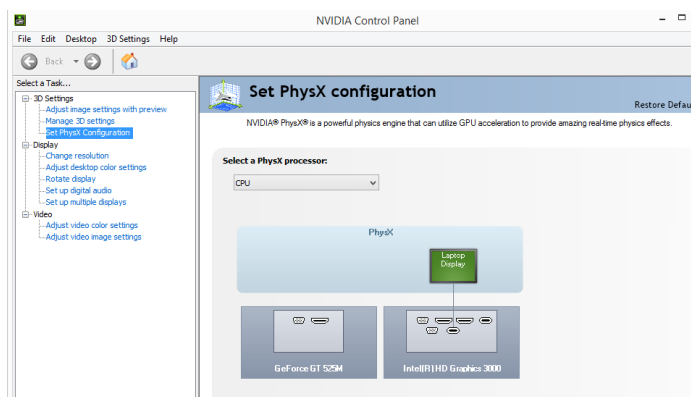
Screenshots



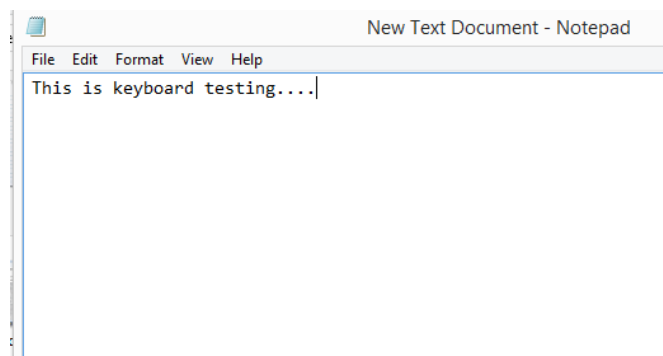
TEST 1 Processor Test (USING DEVICE MANAGER)



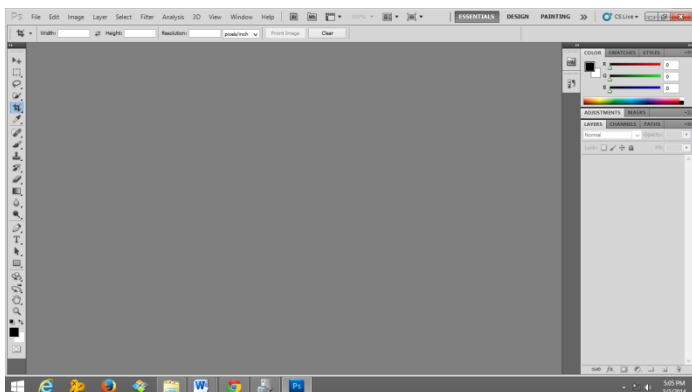
TEST 2 Bluetooth test (USING MSINFO32)



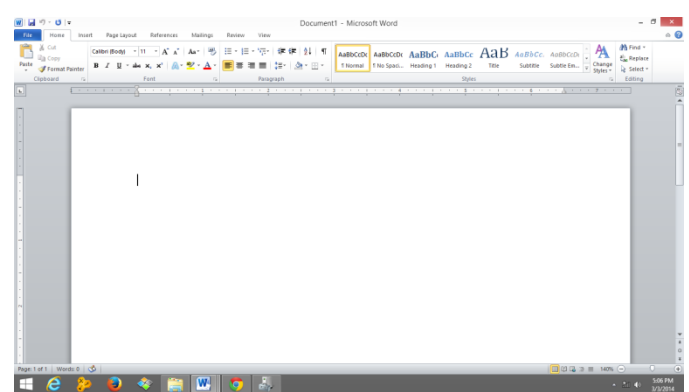
TEST 3 Default Graphics Test



TEST 4 Keyboard Test



TEST 5 Photoshop Test



TEST 6 MS WORD 10 TEST

Test Failures and Solution

Bluetooth: Test result shows Bluetooth device is deactivated. To solve this issue, perform these steps.

- Go to device manager
- Right click on Bluetooth device and select enable.
- Done

Default Graphics Card

Test shows, Integrated Intel Graphic card is used as default graphics card. To change this and use NVidia as default perform these steps.

- Right click on desktop, select NVidia control panel.
- From Set PhysX configuration menu set NVidia as default card.
- Restart computer. Done

Task 8

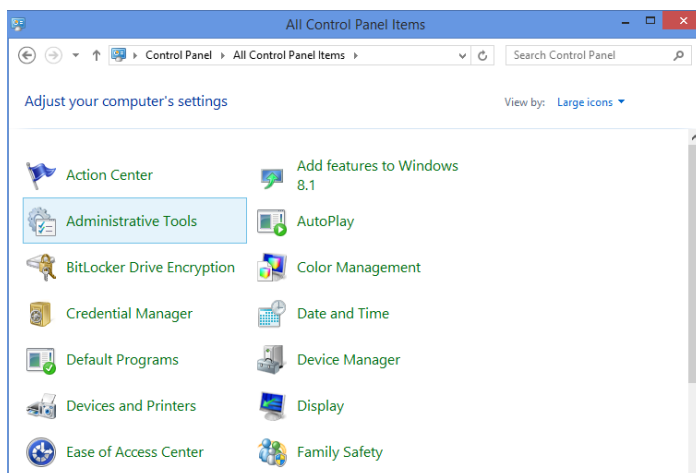
Routine Maintenance Tasks:

Cleaning up disk regularly can enhance computer performance and delete un-necessary files.

- 1) Add scheduled task for Disk Clean up to run every Monday at 17:00

To create to new schedule that can perform Disk Cleanup on every Monday at 17:00 I followed following process.

- Go To **Control Panel**. And then select system and Security. (**Alternatively Directly go to Administrative Tools**)
- Double click the **Task Scheduler** (If you are asked for administrative confirmation, provide that).

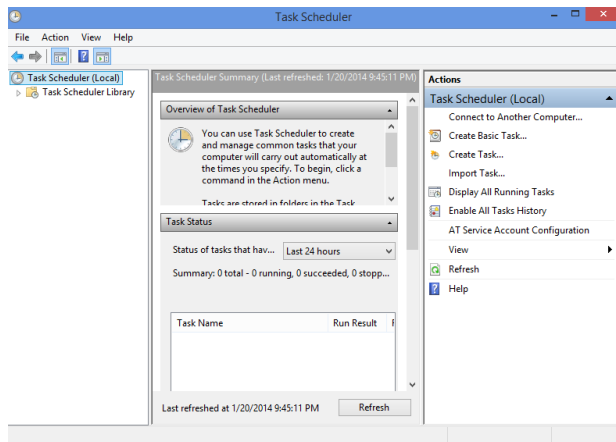


Screenshot 1 Control Panel /Administrative Tools

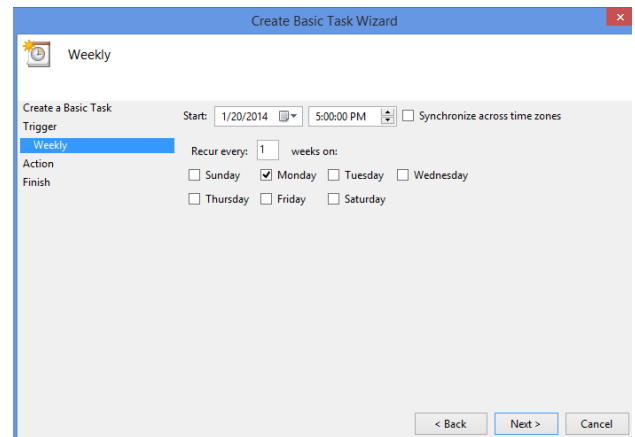
Services	8/22/2013 12:39 PM	Shortcut
System Configuration	8/22/2013 12:38 PM	Shortcut
System Information	8/22/2013 12:38 PM	Shortcut
Task Scheduler	8/22/2013 12:40 PM	Shortcut
Windows Firewall with Advanced Security	8/22/2013 12:30 PM	Shortcut
Windows Memory Diagnostic	8/22/2013 12:37 PM	Shortcut
Windows PowerShell (x86)	8/22/2013 9:19 PM	Shortcut
Windows PowerShell ISE (x86)	8/22/2013 12:40 PM	Shortcut
Windows PowerShell ISE	8/22/2013 12:40 PM	Shortcut

Screenshot 2 Double Click Task Scheduler

- In Task Scheduler click on **Create Basic task**.
- Then in pop-up windows give **task name** and optional task **description**. Click **next**.
- To select a schedule based on the calendar, click **Weekly**, and then click **next** (Screenshot 4).
- In Next step set the Schedule. Set Monday 17:00, Click **next**.
- Select **Start a Program** option and click **next**.
- On the browse and find **cleanmgr.exe**. Click **Next**.
- Click Finish



Screenshot 3 Task Scheduler

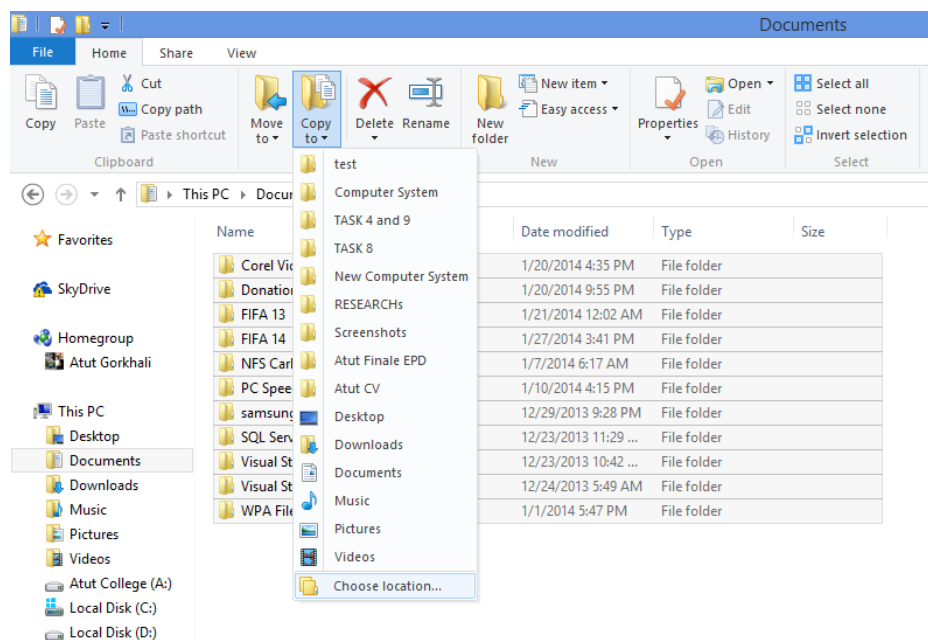


Screenshot 4 Schedule the calendar

- 2) Set up a backup procedure for 'My Documents' folder to be backed up into a folder named 'Back up' on hard drive.

Backing Up important data is a safety process. Backup ensures, in case of something goes wrong, there is another copy of same data to work with.

To back up 'My Document' into a folder named Back Up in hard drive I followed process as below.

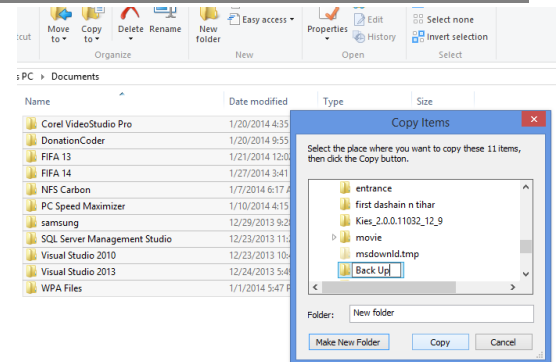


Step 1

- Double click on **This Pc** icon in desktop. (**In windows 8.1**)
- From **sidebar** in file explorer click on **Documents**.
- In Documents select **all files** and folders clicking (**Ctrl + A**) in keyboard.
- From home tab click on **copy to** button and select **Choose Location**.
- Now Drag the slider down and select the drive where back up should be stored. I selected drive **F:** (any place including external media can be selected for back up location).

- f) Click on **Make new folder** and name it **Back Up**.
- g) Click on **Copy**. Let the process finish.

After this process contents of **Document** was successfully backed up into the **Back up** folder of drive F.

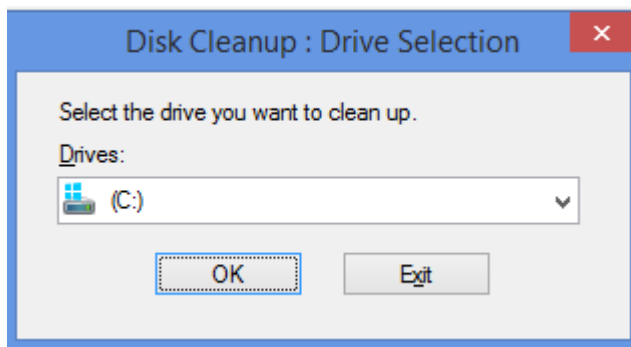


- 3) Delete temporary files from the hard drive using disk cleanup.

Step 2

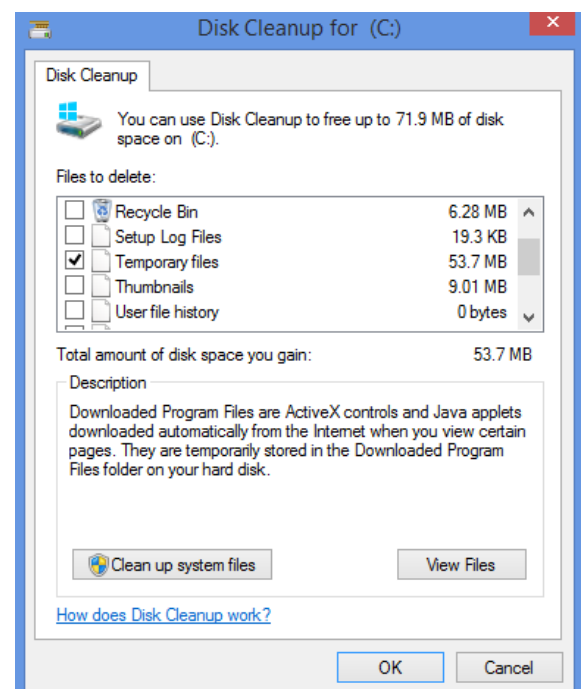
Temporary files can cause system slow down and occupy storage spaces in hard drive so it's necessary to clean unwanted temporary files in regular basis, to perform disk cleanup to delete temporary files I have gone through following process.

- a) Go to Control panel and click on Administrative tools.
- b) Under Administrative tools double click on Disk cleanup.
- c) On the Disk Cleanup: Drive selection windows select the drive to perform disk clean up.



Step 1

- d) Press OK. Let the Scan end.
- e) From the check boxes tick temporary files. Press OK.
- f) Press Delete File to finish the process.



Step 2

Task 9**Current Configuration**

Hardware specification			
S.N.	Component	Type/Model	Remark/Size
1	Processor	Intel Celeron G1820	-
2	RAM	DDR3	1 GB
3	HDD	Internal	160GB
4	Optical Drive	-(No Optical Drive)	-
5	Power Supply	Corsair	450W
6	Mouse and Keyboard	Dell-USB	-
7	Motherboard	ASROCK H81M-HDS	Socket 1150
Software Specification			
S.N.	Software	Version	-
1	Windows	7	-
2	Microsoft office	2003	-
3	Photoshop	8	-
4	(No Antivirus)	-	-

Existing Computer: Needs of Upgrade

Current Computer seems to have fairly old and weak components configured. It is essential to upgrade the system to enhance the performance and run it at satisfactory level. It is lacking optical drive, which is causing client problem to install software and play movies. System is quite slow and cannot run smoothly while running 2 or more application at a time. Additionally, client has problem while saving data due to the small capacity of hard disk.

Some of the software in the system is also old dated, and latest versions of that software are available at market with better feature. Hence it is necessary to make required upgrades in the system.

Hardware Upgrade

Processor

Upgrading the processor from Intel Celeron G1820 to Intel i5 4440 is a huge step. This upgrade can change the whole computer performance by miles. A comparison by CPU-world (N.D) suggests, i5 4440 can beat Celeron in every department. This upgrade will provide the system HD4600 graphics for better graphics performance. The current motherboard in the system supports the i5 4440 hence it recommended upgrade.

Upgrade Process

- Turn off the computer and unplug from power supply.
- Manage the workplace, wear anti-static wrist band.
- Open the computer case
- Unplug the wire and Carefully remove CPU cooler
(If necessary remove whole motherboard to make whole upgrade process easier)
- Now, remove the older processor and place new i5 4440
- Put a tiny bead of thermal compound on the surface of the processor. Spread it evenly over the surface with a knife or screwdriver blade.
- Set the cooler on top of processor again. Make necessary wire connection.
- Close the computer case
- Start the computer up.
- From msinfo32 check the processor status.
- Done.

RAM

Since user is having problem when running multiple applications and cannot run Photoshop cs6 properly more RAM is required in the system. The current motherboard has additional RAM slot where more RAM can be installed. One 4 GB RAM card will make total RAM of 5 GB which is sufficient for bigger application and running multiple application.

Upgrade Process

- Turn off the computer and unplug from power supply.
- Manage the workplace, wear anti-static wrist band.
- Open the computer case
- On the empty RAM slot besides existing 1 GB card install another 4 GB RAM card.

- Close the computer case
- Start the computer up.
- From msinfo32 check the RAM status. (If RAM status is not upgraded, repeat the process and reinstall the RAM. Done

Hard-disk

Having 160 GB of hard disk is not sufficient for full-fill client's needs. Addition Hard-disk of 1 TB SATA disk can solve this issue. This upgrade will result total storage capacity of system increase to 1184 GB. Upgrade Process:

- Turn off the computer and unplug from power supply.
- Manage the workplace, wear anti-static wrist band.
- Open the computer case
- Place additional 1 TB hard-disk in disk panel above existing 160 GB disk.
- Plug the SATA cable both into motherboard and disk. Connect appropriate power cable.
- Close the computer case
- Start the computer up.
- From disk management check the storage status. (If Storage status is not upgraded, repeat the process and reinstall the hard drive. Done

Optical drive

Since there is no optical drive in the system, user has to face problems to install drivers and software. Hence upgraded system must have one optical drive too. Any 24X DVD RW is good enough upgrade. Optical drive installation is exactly similar to hard-drive installation.

Software Upgrade

Microsoft Office

Current computer has very old 2003 version of Microsoft office. Later versions like 2007, 2010 or 2013 are far better than the current one. Office 2010 is more secure, friendly, stylish and modern. It is really important to upgrade office package to later version than 2003, and I am recommending 2010 version.

Upgrade Process

- Purchase the office 2010 from Microsoft.com or Buy DVD of MS office 2010.
- Uninstall the 2003 version of office package
- Install downloaded office 2010 or from DVD. Done.

Photoshop

To utilize latest features and tool of Photoshop, Photoshop in this system should be upgraded. I am recommending Photoshop CS5 which has really great brushes, tools and other features.

Upgrade Process

- Purchase latest version of Photoshop or CS5
- Uninstall the Photoshop 8 version of Adobe Photoshop package
- Install downloaded Latest Photoshop or CS5 from DVD.
- Restart the computer to complete installation properly.

Antivirus

This computer does not have any anti-virus. To protect this system from viruses, malware and other issue, anti-virus must be installed. For this purpose free tool by Microsoft for windows 7, Microsoft Security Essential is really good.

Upgrade Process

- Download Microsoft Security Essential from Microsoft site
- Install downloaded Microsoft Security Essential
- Update the virus definitions. Done

Proposed Hardware Upgrade specification			
S.N.	Component	Type/Model	Remark/Size
1	Processor	Intel i5 4440	-
2	RAM	DDR3	4GB
3	HDD	Internal	1TB
4	Optical Drive	LG SATA Internal DVD Writer	24X
Proposed Software Upgrade Specification			
S.N.	Software	Version	-
1	Microsoft office	2010	-
2	Photoshop	CS6	-
3	Microsoft Security Essential	-	-

System Specification after Upgrade

Hardware specification After Upgrade			
S.N.	Component	Type/Model	Remark/Size
1	Processor	Intel i5 4440	-
2	RAM	DDR3	1 GB+4GB=5GB
3	HDD	Internal	160GB+1TB=1184 GB
4	Optical Drive	LG SATA Internal DVD Writer	24X
5	Power Supply	Corsair	450W
6	Mouse and Keyboard	Dell-USB	-
7	Motherboard	ASROCK H81M-HDS	Socket 1150
Software Specification After Upgrade			
S.N.	Software	Version	-
1	Windows	7	-
2	Microsoft office	2010	-
3	Photoshop	CS6	-
4	Microsoft Security Essential	-	-

Conclusion

It is essential to make necessary upgrade to old computer in regular basis to maintain its performance. Both hardware and software components of the computer are quite old in this system. To improve performance some upgrades need to be done. After the upgrade process as recommended in this report is done, computer will be able to overcome its performance issues. This computer would be able to run latest applications, store lots of data and run multiple applications at once. Installation of anti-virus will secure computer. Overall performance of computer will improve.

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