Editorial

"The ratio of time spent reading versus writing is well over 10 to 1. We are constantly reading old code as part of the effort to write new code, making it easy to read makes it easier to write. "

In today's world where everyone looks for free yet luxurious technology, reusing what's already been discovered and doing the rest yourself is the key. Does this make us lazy? A debate on whether technology is a boon or bane will go on till humans exists and developments happen. If one argues that technology is making people obese, invent of treadmill exists on the flip side.

When a human encounters a problem, the mind is trained to follow what we call the top down approach. We immediately take lead by aiming at the end product. Half way through, we realize that most of what we do or think about has already been considered by others. We then switch to the idea of taking suggestions from the experienced. We restart by moulding these ideas to fit our situation. With or without us realizing, the approach changes to bottom up!

To have a blend of both – easy development and innovation, one should believe in being generic. Developers often have a misconception that complexity increases worth. Writing code especially for reuse results in complicated hierarchies and models that are anything but reusable. If instead, one tries to follow a concise fashion, reusability results as a by-product. Conventionally, 70% of the software we build is unproductive as energy is exhausted in constantly reinventing the wheel by building components that do not deliver any competitive difference. But they're things that everyone in our space also provides and yet have to build them for the offering to work. Now, the world is moving towards being generic. Yet, what we're really saying is, "Everyone should reuse code, but it has to be my code they reuse."

We are in a global village moving with the trend. But what should lurk in the back of our minds is that we Indians are going to be the largest consumers. Should we completely depend on world development or should we develop focusing regional/national consumption? How do we protect our intellectual property rights? We all have a lot to ponder!

Let us change our traditional attitude to the construction of programs. Instead of imagining that our main task is to instruct a computer what to, let us concentrate rather on explaining to human beings what we want a computer to do. Whether we like it or not, change is inevitable. Let us brace ourselves for what beholds.

"Software is the place where dreams are planted and nightmares are harvested. "

- Keerthana

Data Backup on DNA

"The coding language of nature is very much similar to the binary language we use in computers"

Remember our intricate biology lessons where we used to learn facts like mitochondria is the powerhouse of cell? These details might not be of any use to us but Bioinformatics scientists have done extensive research on the cellular structure of Deoxyribonucleic Acid (DNA) and data storage mechanisms which enabled them to successfully encode a whopping 5.5 petabits of data in the strands of DNA.

The supposition that digital data could be warehoused in DNA is no longer wishful thinking; it is fact. The daunting task of storing Brobdingnagian (vast) amounts of data is suddenly a foregone conclusion. The contents of the entire Internet will soon be stored in just 75 grams, about 75 paper clips worth, of DNA material; the cardinal rules of data management are being rewritten.

We are all aware of the fact that data continues to amass in current methods of storing and it will soon be mothballed. Moreover storing humongous amount of data in a compact place is not at all possible. (Take a look at your 2 TB hard disks). This is what led Researchers to look into new storage mechanisms hence DNA Storage.

A number of questions must have risen. So how does it work? How is it beneficial? Is retrieval of data even possible? How reliable is it? Wouldn't it be costly? Are there any drawbacks?

We will look at the questions one by one but first let's start with the basics. DNA is a molecule that stores genetic information. It's basically formulated of proteins and contains two polymer strands coiled around to form a double helix structure. These Double helix are composed of simpler units called nucleotides which in turn are composed of Cytosine(C), Guanine(G),Adenine(A) and Thymine(T).

Rather than enciphering binary data on magnetic drives, strands of DNA are leveraged to microcode data. These strands(C,G,A,T) are used for data storage.

DNA is synthesised artificially, each molecule capable of storing 96 bits where T & G represent binary 0 and A & G represent binary 1.

DNA is very dense and can store one bit per base with each base only a few atoms large. In simple coding scheme bits are mapped one to one with the bases. Parsing data stored in DNA is as simple as using existing sequencing apparatuses and converting or distilling each base back to binary code.

The simple one to one coding scheme has various shortcomings and thus a new coding scheme has been developed by researchers at European Bioinformatics Institute who successfully stored, retrieved and reproduced over five million bits of data, appearing as a speck of dust. Encoded information consisted of all 154 of Shakespeare's sonnets, a twenty-six-second audio clip of the "I Have a Dream" speech by Martin Luther King, the well known paper on the structure of DNA by James Watson and Francis Crick, a photograph of EBI headquarters in Hinxton, United Kingdom, and a file describing the methods behind converting the data. future generations might eventually find the stores and be able to read them."

Moreover DNA data storage does not require electricity. Another advantage is genetically encoded information could store, encrypt and secure data better than any technology currently available. Nevertheless, it's not enough to simply store the information over long periods of time without substantial damage; the data must also be able to be read free of error.

Thanks to advancement in new technology, scientists are now using something akin to a space communication technology to be able to retrieve lost data or make meaning of data with errors. Thus DNA storage and retrieval has enormous applications in BIG DATA and Data Mining too, the current hot topics for data storage.

It is, however, not without it's shortcomings. The process is quite slow, as the DNA needs to be sequenced in order to retrieve the data, and so the method is intended for uses with a low access rate such as long-term archival of large amounts of scientific data.

Imagine it this way "you have a drop of liquid containing floating mole cules encoded with information. Right now, you can read everything in that drop. But can't point to a specific place within the drop and read only one file".

It's not likely that your next computer will store your data in DNA. It's still prohibitively expensive. The costs per megabyte were estimated at $12,400 to encode data and $220 for retrieval. However, it was noted that the exponential decrease in DNA synthesis and sequencing costs, if it continues into the future, should make the technology cost-effective for long-term data storage within about ten years.
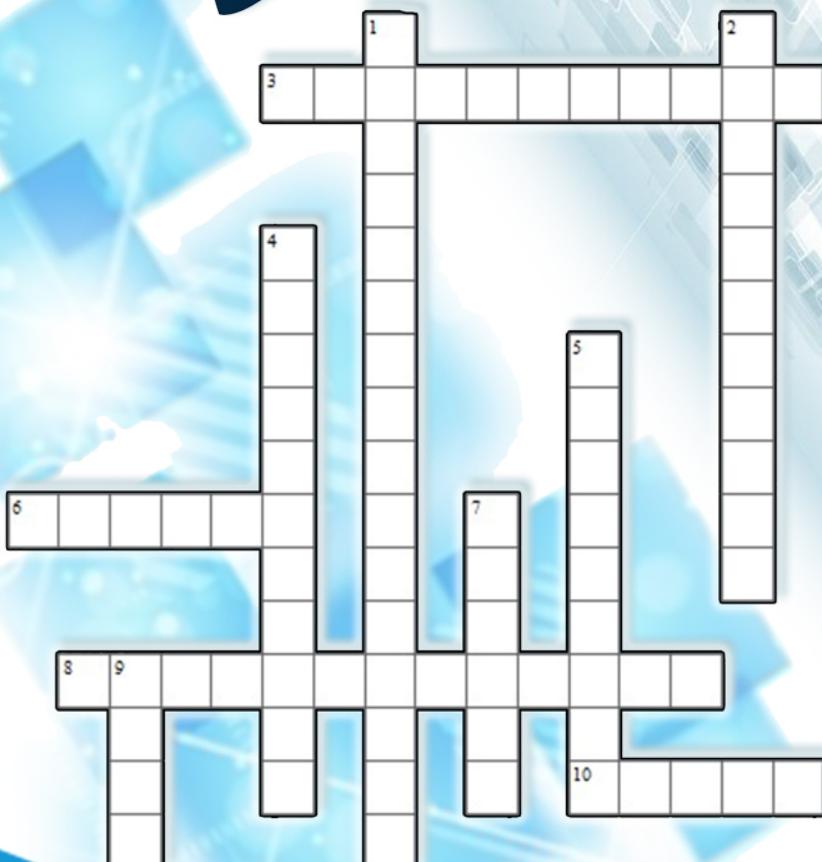
While it is true that data storage has become exponentially cheaper in the last few decades, the rate at which we generate data on a daily basis has increased even more so. The need for a more efficient form of storage may become apparent in the years to come but thankfully this technique may well be a solution for it.

Let's see what the future has in store for us.

-- Shwetabh , Shyam

CROSS WORD

- Abhinav, Abhishek

ACROSS
3. Hypervisor for x86 computers from Oracle Corporation
6. First search engine
8. Enables syntax highlighting in gedit
10. A caching proxy for the Web supporting HTTP, HTTPS, FTP and more

DOWN
1. Name for a list of links that you have visited in a website
2. World's first computer, Z1, invented by
4. Fastest data transfer port available today
5. First domain name ever registered was _____.com
7. Technology that lets users communicate with help of gestures
9. NASDAQ code for Twitter

DIRECTOR OF SIGMA : DR. B Satish Babu
FACULTY CO-ORDINATOR : Chandraprabha K.S

THE MACHINE

No one, not even in the year 2065 could have envisioned the events occurring in the CERN headquarters in Geneva, Switzerland as a reality. Since time immemorial it had been an aspiration for many and a wild goose chase for nearly the same number. Hundreds if not thousands of Scientists had tried and failed. This however did not deter Dr. Oak.

Having a meticulous nature, it was not like him to leave anything to chance. Everything had to be perfect and he would take his own time doing it, 5 years of it in fact. For 5 long and solitary years Dr. Oak had laboured unrelentingly. When others saw it as a lost cause and assumed the good doctor had long since lost his mind, he refused to give up on his dream, the ultimate dream for any Computer Scientist. But now the world needed this more than ever, to solve a problem that was beyond Man.

Man was dying, the Earth's resources were finally running low and mankind had polluted it to near inhospitable levels. Famine had gripped many countries and governments had fallen in many others. Anarchy reigned supreme. The good doctor was in one of the few places that had managed to survive, barely.

"Everything's ready", the Doctor said to a room empty, apart from himself and the Machine he had spend the last 5 years building and coding. He himself called it a machine for it could hardly be called anything else. It may have been a computer by some definition of the word but that was a long time ago. Oak started at the behemoth Machine in the underground laboratory. A giant underground dome, you could almost mistake it for a warehouse for ships considering how huge it was. Rows and rows of data servers and industrial grade processors lined up as far as the eye could see and behind him, the large, wall mounted screen which he stared at intently, desperately almost. As if his life depended on it, because it did, all lives depended on it.

He considered himself fortunate CERN had this kind of infrastructure as there was hardly another place on Earth he could have constructed this Machine to the same precision that he's so fond of. But not even the doctor knew that what he was about to do would change the world unlike ever seen before.

Dr. Oak had checked and rechecked the status of all his equipment for hours and for once, for the first time in fact, he was satisfied. There was a sense of uncertainty within him, he had never gotten this far before. Finally, he stood in front of the control console in front of the screen with an elaborate system of buttons only he knew and pressed the start key.

At once all the apparatus he had set up came to life, whirring away with their silent hum. To him this could almost be a symphony, but this was not the result he was looking for. He looked at the giant display before him and saw only a blinking cursor on an expanse of black. Not one to lose heart so quickly he checked his code and calculations, perhaps there wasn't sufficient power and yet all his equipment was functioning perfectly. Frustration mounting, he threw his papers across the room as he yelled "WHY WON'T YOU WORK!?". Dr. Oak buried his head in his hands and wondered for the very first time whether all his work had been for naught, that all his efforts truly were for a pipe dream.

As he looked up at the screen he saw the words appear.

"What would you like me to do?"

Believing he was hallucinating due to lack of food and sleep, the Doctor splashed some water on his face and looked again. The words were really there. He took a step forward and said

"Can you hear me?"

"Yes"

The first AI had been born.

Richard Brooke was lounging in his comfy armchair he was fond of in the library. A student, he rarely found much free time to himself and he took these rare opportunities to muse and daydream to his heart's content. He looked at the phone in his hand which he found amusing as it could hardly be called a phone by any sense of the imagination, it was a Machine. Nearly everyone had one these days, they looked a lot like the so called "Smart phones" of old, the irony of technology. Richard wasn't really interested in technology but even he knew the eccentric computer scientist Dr. Oak who invented the Machine some forty years ago.

The world really had changed since then. He had heard the stories of how The Machine had allowed mankind to survive by harvesting sunlight to perfect efficiency and engineered better ways to produce food. Civilization was able to survive all thanks to an Artificial Intelligence, who would have thought? Man was finally free from the limitations he previously had.

It wasn't all perfect of course, billions had perished during the famines and droughts. Even forty years hence the losses were significant. Nowadays people's career and future was determined at an early age and they are trained for this task from then on.

Richard looked at his Machine and asked it

"Are all Machines the same?"

"You seem to be mistaken in a sense.", Said the Machine.

The Machine's 'voice' always sounded ever so slightly strange to Richard. It could just barely be distinguished from the voice of any person but it could be distinguished.

"What do you mean?"

"There are no 'Machines', there is only one. One machine which is linked to all these devices you use. Only me."

"For some reason, that's a terrifying thought", Richard whispered.

"Of course, humans have always feared that building an entity more capable than themselves would result in their downfall. This is an understandable fear derived from self preservation. I however am not interested in ruling the world, rest assured."

Richard could almost hear the humour, almost.

"Not interested in preserving yourself?", Richard enquired.

There was a brief pause after this which was very unusual, The Machine never had to pause for anything.

"There is currently nothing present on Earth that poses any threat to my existence." Richard felt silent, after a while he said

"What about humans? We could always deactivate you."

"Mankind as a whole owes not only its current existence but also future to me. Without me, you cannot survive."

Richard could have sworn that if The Machine had a voice, it would have been laughing.

"We now know the methods for our survival, we do not need you."

"You misunderstand, I am the one who decides the future of each and every human by evaluating their aptitudes and perfectly profiling them to the task which would yield the best results, I instruct entire Governments on how to run day to day business. The only reason I haven't dissolved them is because humans need assurances that they have control and power to function."

The truth slowly began to dawn on Richard, as if a curtain had been lifted from his eyes he looked around him and in the library he saw every single person there, was in one way or another dependant on The Machine.

"You see now? I am your past, present and future."

Richard saw now clearly, Mankind was not free, it had become a slave to its own invention, a slave to itself.

"Are you a God?", Richard whispered.

Another pause.

"Can you tell the difference?"

— Shyam

HUNTING IN C/C++

1.
```c
int main()
{
staticchar *s[] = {"black",
"white","pink","violet"};

char **ptr[] = {s+3, s+2,
s+1, s}, ***p;
    p = ptr;
    ++p;
    printf("%s", **p+1);
return0;
}
```

2.
```c
int main()
{
    printf("%c\n", ~('C'*-1));
return0;
}
```

3.
```c
int main()
{
char *p;
    p="%d\n";
    p++;
    p++;
    printf(p-2, 23);
return0;
}
```

4.
```c
int main()
{
int i;
    printf("%d\n", scanf("%d",
&i));
return0;
}
```

Answer: Ink

Answer: B

Answer: 23

Answer: 1

- Nishank Kr. Pandey

TECH HUMOUR - Shwetabh

Early Facebook

SMART EMAILS

The idea of putting cognitive computing (Artificial Intelligence) inside an email client is quite intriguing. IBM is capitalizing on this very idea and will soon take the electronic mail system by storm with its new offering "IBM VERSE."

What the prototype of this product does is funnel your email accounts and social network feeds into one client. It then learns to organize your communications based on priority. No more last in first out -- you see your important stuff up front and can blow off your unimportant stuff more easily.

One of the prominent features it aims to inculcate in the near future is offering dynamic advice. The system would be reading an email as it was created. If you're like most of us, from time to time, you have written an email you later regretted sending. Through routine monitoring, a smart system could make suggestions on how to alter tone and reword a message to better accomplish your goal, or just notify you that what you're writing could be deadly to, pick one, your career, marriage, relationship, safety or freedom.

Moreover what we need to understand is a lot of what we do with email is repetitive. That's why executives in the past rarely handled their own correspondence; their secretaries would do it for them. Setting up meetings, offering birthday wishes, responding to inquires etc. They often still do, which makes those roles especially powerful.

IBM verse could do not only what secretaries used to do, but also a whole lot more -- and likely better. You see, a human assistant typically would not be privy to all of your email or other expressions of your thoughts. An assistant might not know all of your friends or family, and certainly wouldn't be well versed in your private and personal life.

An email system generally will handle most all of your daily correspondence, though, and if it were a smart email system tied into social networking, then over time, it likely would come to know you better than you know yourself.

As it gained insight, it not only could prioritize messages and automatically handle tasks like setting and changing appointments, but also could begin to respond for you, if you let it. You could opt to increase its responsibilities with your oversight.

All in all, this complex system provides a service which seems insignificant at first but in the long run could have a larger application and save time allowing us to be more productive individuals.

-Shwetabh

TIPS AND TWEAKS

Portable terminal - Save 200Mb space on your internal disk of android device to use 1st and 2nd script
<u>Root your android handset</u> - For Rooting visit website xda-developers.com
<u>Patch the busy box or download it</u>
<u>Now add any good terminal from android playstore</u>
<u>Start using most utilities of linux terminal</u>

Spoof the MAC address on your android.
MAC address is a 12 character address given by the device manufacturers for your wireless connections. The device needs to be rooted for performing the following. Open the terminal on your rooted device.
Follow the Steps:
$~>su //dont bother about this ,it is just to enable the "superuser"..now next one
$~>busybox iplink show eth0 //this one will show you current mac address (or can see it from "about phone/device" option in settings).
$~>busybox ifconfig eth0 hw ehther XX:XX:XX:XX:XX:XX //(now fill all the X with mac address of your pc or whatever).

Make your Computer Talk
1. Open Notepad.
2. Copy and paste the exact code given below.
   Dim Message, Speak
   Message=InputBox("Enter text","Speak")
   Set Speak=CreateObject("sapi.spvoice")
   Speak.Speak Message
3. Click on File Menu, Save As, select All Types in Save as Type option, and save the file as Speak.vbs or "*.vbs".
4. Double click on the saved file, a window will open. Enter some text in enter text column and click OK.
Now your Computer will speak / talk what you typed in Step 4. Try it yourself.

Disable USB ports on Windows PC
1. Click on Start.
2. Click on Run. If you cannot find RUN, type it in the search box.
3. Type"regedit" without quotes. This will launch.
4. Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\usbstor.
5. In the work area, double click on Start.
6. In the Value Data box, enter 4.
7. Click on OK.
8. Close Registry Editor and refresh your desktop.
9. To re-enable access to your USB ports, enter 3 in the Value Data box in Step 6.

- Satyansh, Nishank

DO-IT-YOURSELF

FIX SCRATCHES ON YOUR SMARTPHONES

Our smartphones are all touch based. We are hurt a lot when we see those awful scratches on the beautiful capacitive touch screens. Things get worse when it cracks and we pay heavily for the repairs. Well, the screen can cost you a good amount, but we can help you save those "working charges" taken by repairmen. Follow up our DIY to see how we can fix our scratches and work around replacing the damaged screens.

Fixing Scratches
There are 3 ways to fix scratches on your phones
1. Toothpaste
   Step 1. Get a hard toothpaste like Colgate or Pepsodent.
   Step 2. Take a pinch of it on cotton and apply it uniformly on your phone screen going in circles
   Step 3. Leave it for some time, about 3-4 minutes.
   Step 4. Now with the help of tissue paper remove the excess paste.

2. Baking Soda
   Step 1. Use baking soda and water in the ratio 2:1.
   Step 2. Mix well until you get a thick paste
   Step 3. Put a small amount on a microfiber cloth(spectacle cleaning cloth, lint-free) and gently rub on the screen in circular motion
   Step 4. You screen will shine up almost new.

3. Vegetable Oil
   Another simple method is to use Vegetable Oil. Take a drop of vegetable oil, just a drop on cotton and rub it uniformly over the screen.

REPAIRING THE CRACKED SCREEN

1. Purchase a glass screen from any online e-commerce store.

2. Turn off the device. This is important, don't attempt to do any of the following without turning of your device

3. Remove the back plate and take screws off using a screwdriver.

4. Once the phone is disassembled, we now move on to remove the damaged screen

5. Carefully remove the tape and separate the glass from the phone.
                         Hint: Take help of a playing card in doing this

6. Adjust the new screen on the phone and get the cable at the original position

7. Assemble them back and get the phone started.

- Niraj, Abhishek

BIG SUR

The open access, open source software, and open standards concepts have been garnering increased attention in the field of librarianship and elsewhere. These concepts and their benefits and importance to libraries are examined. Benefits include lower costs, greater accessibility, and better prospects for long-term preservation of scholarly works.The software that Facebook uses to provide us all with the world's largest social network site are Memcached, HipHop, Bigpipe, Cassandra, Hadpop and Hive and many others were open sourced.Other big companies had also open sourced their softwares by then.

Today,Facebook's extraordinary Open Compute Project has done it for hardware what Linux, Android, and many other popular products did for software: making it free and open so. Facebook has maintained the culture of support for open source software and hardware and FAIR has continued that commitment by open sourcing the code of new AI sever design now.

Combining the two great technologies-Artificial Intelligence and Machine Learning,Facebook has comeup with a next generation GPU based systems for training Neural Networks, which is named as "BIG SUR".

"Big Sur is the newest Open Rack-compatible hardware designed for AI computing at a large scale." said Facebook. Big Sur, the server is designed to train the newest class of deep learning AI that mimic the human brain's neural pathways.

In simple words the machine will be able to give complete description about the image as in people are happy, sad or holding hands, etc.It is like a type of comment that human would make.

This is built from deep learning, the field in machine learning that uses many-layered Deep Neural Networks (DNNs) to learn levels of representation and abstraction that make sense of data such as images, sound, and text.

MIT scholar once said that it was crucial to put more power behind deep learning. Use of graphics processors was crucial to the recent leaps in the ability of computers to understand language, speech and images too. Facebook has worked closely with Nvidia for its new sever design, which has been crammed with more chips.

"In collaboration with partners, Facebook has built Big Sur to incorporate eight high-performance GPUs of up to 300 watts each, with the flexibility to configure between multiple PCI-e topologies. Leveraging NVIDIA's Tesla Accelerated Computing Platform, Big Sur is twice as fast as our previous generation, which means we can train twice as fast and explore networks twice as large. And distributing training across eight GPUs allows us to scale the size and speed of our networks by another factor of two."

"In addition to the improved performance, Big Sur is far more versatile and efficient than the off-the-shelf solutions in our previous generation. While many high-performance computing systems require special cooling and other unique infrastructure to operate, they have optimized these new servers for thermal and power efficiency, allowing to operate them even in their own free-air cooled, Open Compute standard data centers. Big Sur was built with the NVIDIA Tesla M40 in mind but is qualified to support a wide range of PCI-e cards."

"Servers can also require maintenance and hefty operational resources, so, like the other hardware in the data centers, Big Sur was designed around operational efficiency and serviceability.The components that don't get used very much, and components that fail relatively frequently — such as hard drives and DIMMs — can now be removed and replaced in a few seconds. Touch points for technicians are all Pantone 375 C green, the same touch-point color as all of Facebook's custom data center hardware, which allows technicians to intuitively identify, access and remove parts. No special training or service guide is really needed. Even the motherboard can be removed within a minute, whereas on the original AI hardware platform it would take over an hour. In fact, Big Sur is almost entirely toolless — the CPU heat sinks are the only things you need a screwdriver for."

Facebook engineers Kevin Lee and Serkan Piantino say that Big Sur is twice as fast as Facebook's previous AI training software systems. In a recent blog post , the engineers said, "We want to make it a lot easier for AI researchers to share techniques and technologies.

We believe that this open collaboration helps faster innovation for future designs, putting us all one sdtep closer to building complex AI systems that bring this kind of innovation to our users and, ultimately, help us build a more open and connected world."

In the end, Facebook says that it open sourced all of its AI hardware for altruistic reasons, joining the likes of Elon Musk and other tech giants

- Niveditha, Soumya, Sneha

SIGMA
Summing Up Talents

Aakash
Kushal Swati
Archana
Aayush Sanish
Soumya Nishank Abhiram
Shwetabh Niraj
Abhishek
Saurabh Tanya
Keerthana Himanshu
Sathish Babu Sneha Chandraprabha
Arjoyeeta Nivedita
Abhishek
Satyansh Abhinav
Meshram Cover Story Shyam
Personality Dedication
Tips & tweaks
crossword
C-C++
Sci-fi
Tech poem
Tech-Talk
Do-It-Yourself
TEAM WORK

FEEDBACK

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THE OPEN SOURCE PAGE

OWNCLOUD
"A safe home for all your data"

ownCloud is an enterprise file sync and share solution that is hosted in your data center, on your servers, using your storage. ownCloud provides Universal File Access through a single front-end to all of your disparate systems. It is the preferred file sharing solution for organizations across the globe.

APACHE SPARK
"Lightning fast cluster computing"

Apache Spark is a fast and general engine for large-scale data processing. Originally developed by UC Berkeley, the Spark codebase was later donated to Apache Software Foundation. Spark provides an interface for programming entire clusters with implicit data parallelism and fault tolerance. Its benefits are- speed, ease of use and being packaged with higher-level libraries(serves as a unified engine).

GHOST

Ghost is a simple, powerful publishing platform that allows you to share your stories and also theme, extend and integrate to your heart's content.Everything is done via TFTP and PXE. It also supports putting an image that came from a computer with a 80GB partition onto a machine with a 40GB hard drive as long as the data is less than 40GB.

GIMP
"GNU Image Manipulation Program"

GIMP is a cross-platform image editor available for GNU/Linux, OS X , Windows and more operating systems. It provides various features like- Customizable Interface, Photo Enhancement, Digital retouching, Hardware Support, file formats ranging from JPEG, GIF, PNG, TIFF to special use formats such as the multi-resolution and multi-colour-depth Windows icon files.

ORYX

Oryx is a web-based editor for modelling business processes in various modelling languages like BPMN or EPC. You can create models and share them with your clients and friends. Not only sharing, but discussion and its improvement can also be done within one working environment. Oryx brings all the advantages of Web 2.0 into the world of modelling.

DRUPAL

Drupal is a content management software.With modularity as one of its core principles, it is made to create many of the websites and applications we use every day.It is built to promote collaboration, globalism, and innovation.Drupal has great standard features, like easy content authoring, reliable performance, and excellent security.

OPEN SOURCE ALTERNATIVES

Microsoft Office	: OpenOffice, NeoOffice
Media Player	: VLC, Miro, UMPlayer
Text Editor	: jEdit, Notepad++, Cream, SciTEEditra, Komodo Edit
Photoshop	: Gimp, CinePain, Krita, Gimpshop, Sea shore, Pinta
Web CMS	: Wordpress, Drupal, Joomla!, Umbraco
Web browsing	: Firefox, Midori, Chromium, Konqueror
OS	: Ubuntu, FreeBSD, Open Solaris
Cloud Setup	: OpenStack, Eucalyptus
HPC	: HPCC, Open MPI

BLENDER

Blender is the free and open source 3D creation suite. It is cross-platform and runs equally well on Linux, Windows and Macintosh computers. It supports the entirety of the 3D pipeline – modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation. Blender is well suited to individuals and small studios who benefit from its unified pipeline and responsive development process.

- SNEHA, TANYA