Choosing your backup hardware:

Over the years, we've repeatedly exhorted you to back up your precious files, photos, videos and music. We've talked about built-in operating-system-level backup solutions, about third-party software, and also other tips and tricks on making backup for a hassle-free experience. But the one thing we've hardly touched upon is backup hardware.

So, let's get down to it: where should you back up your data? Are CDs and DVDs passé? Should you have a cloud backup?

CDs/DVDs

Time was when optical disks were all the rage. But they don't excite us so much anymore. There are many reasons for this. First, these days not all computers have a built-in optical drive anyway. Second, CDs and DVDs don't provide a huge amount of space. A CD-R/RW holds 700 MB of data, which is ridiculously low by today's standards. Of course, an RW (rewritable) CD/DVD can be reused. A single-layer DVD-R/RW has 4.7 GB of space, while a dual layer has 8.5 GB. Double-sided DVDs can store 9.4 GB and 17 GB respectively.

Finally, optical disks can be notoriously unreliable. While under 'ideal conditions' data on disks are supposed to last up to 10 years, this means keeping it away from heat, humidity and dust/dirt. Contact with oxygen deteriorates the material on which the material is recorded, while dust and dirt result in scratches. Also, cheap, low-quality optical disks will have shorter life spans.

However, CDs and DVDs are still accessible and cheap, and a reasonable solution for anyone who has a clean, dry, cool space to store them in.

External hard disks

When it comes to the sheer amount of space it offers, you can't top an external hard disk (HD). You can get them in sizes of 120 GB upwards, though these days 1 TB is a good size to start with given the amount of data we are hoarding. External HDs with capacities as high as 6 TB are also available. A 1 TB drive could cost Rs 4,000 upwards. External disks can be wired or wireless—though the latter cost more, of course. The drawback to external HDs is that they are susceptible to shocks and physical damage. If you accidently drop it, get ready to say bye-bye to your data. Hard drives do also crash occasionally and since they are made of mechanical moving parts, they will wear out eventually, say in about three to five years.

Pen drives and memory cards

Pen drives and memory cards are more reliable than hard drives in the sense they use flash storage that doesn't contain moving parts which means they can be knocked about to some extent. They are also highly portable. However, having a limited number of write/erase cycles (usually 3,000 to 5,000) can make them restrictive for long-term backup. Flash storage also comes in a variety of capacities, up to 256 GB. Bear in mind that they are much more expensive per-GB than external HDs—a 128 GB flash drive can cost almost as much as a 1 TB external HD.

The cloud

Keeping your files on the cloud means that someone else has to worry about the hardware. There are plenty of options, Dropbox, OneDrive and Mega to name a few. Free space can be limited (Dropbox gives 2 GB, OneDrive 5 GB and Mega a whopping 50 GB) and you will have to cough up to buy serious cloud space.

So what's the solution?
There really isn't any 100 per cent reliable way to keep data safe. The trick is to build redundancy into a backup plan. So, instead of relying on a single type of backup hardware, make sure you have backups of your backup, especially for important files.

-**Ms. Sunita Bhuiya**
Source: Financial Chronicle | 14 June 2016

Who Controls the Internet?

In 1986 Stephen Wolff took an obscure job with the U.S. government: division director for networking at the National Science Foundation. This meant he was effectively in charge of the internet—at the time, a conduit for academic messages and file sharing. But over the next few years Wolff came to realize that if he did his job well, he would put himself out of one. He reckoned that eventually the network he was overseeing could, should, and would be open to everyone, and thus too big and complex for any single person or agency to manage.

Wolff was right. As Shane Greenstein, of Harvard Business School, documents in his richly detailed history *How the Internet Became Commercial,* the decentralization of control over this resource resulted in one of the most significant periods of technological innovation and economic transformation in history.

Consider the Mosaic browser—created at the University of Illinois at Urbana-Champaign with an NSF grant, building on technology that had been developed at a physics lab in Switzerland (CERN), commercialized by a start-up in Silicon Valley (Netscape), and eventually licensed to a 20-year-old tech company (Microsoft). This is what Greenstein calls innovation "seemingly from the edges of the network"—not led by a "single, hierarchical, and deliberate organization" (as sci-fi writers such as Arthur C. Clarke, the inventor of HAL in *2001: A Space Odyssey,* had predicted future technology would) but arising from dispersed, cumulative, unpredictable work, enabled by forward-thinking laws, norms, and institutional decisions.

Whereas Greenstein analyzes the past, the authors of several other recently released books are looking forward, imagining what's next for the internet as it becomes ubiquitous in our lives. *The Inevitable,* by Kevin Kelly, a cocreator of *Wired,* offers a futurist's perspective; *The Third Wave,* by Steve Case, a cofounder of AOL, gives an entrepreneur's; and *The Industries of the Future,* by Alec Ross, formerly of the State Department, presents a statesman's.

These three books have a lot in common. They all describe technologies that are poised to change society: machine learning, robotics, virtual reality, and connected products, among others. All cite the challenges raised by those developments, while expressing a sincere hope that

their impact will be broadly positive. And all predict that innovation will continue to come "from the edges," though each author offers his own spin on what that means.

Kelly, whose book is the vaguest and most speculative, sees decentralization as inherent in a networked world. Case envisions the internet extending to new industries and enabling "the rise of the rest," in which cities beyond Silicon Valley come to dominate specific fields. And Ross predicts similar diversification by industry and geography with an even more global view—the acceleration of mobile banking in Africa, for instance, and of robots in Japan.

But what if the decentralized model that Greenstein outlines is going away? After all, today's internet is clearly dominated by what Farhad Manjoo, of the *New York Times,* calls the Frightful Five: Amazon, Apple, Facebook, Google (now a unit of Alphabet), and Microsoft. Might these incumbents be more inclined and better positioned than past giants to defend their turf and maintain centralized control?

For one thing, they own much of the technology deemed critical to the next wave. Facebook has acquired one of the leading virtual reality firms, Oculus. Alphabet has absorbed seven separate robotics companies along with DeepMind, the artificial intelligence outfit that recently established a milestone by beating a world champion at the game Go. Amazon and Alphabet are both experimenting with drone delivery, and, of course, Alphabet is developing a self-driving car. Data is another advantage. The Frightful Five have vast amounts, which is exactly what you need to build machine-learning applications. Because they've been in business (and collecting information on their many customers) for years, they have a dramatic, perhaps insurmountable, head start in this area. As Ross asks, "Will big data serve to centralize businesses, pulling more industries into the gravitational field of Silicon Valley?"

Case places his faith in entrepreneurs and their record of displacing incumbents. After all, AOL survived Microsoft's attacks during his tenure; perhaps today's start-ups can do the same against the Frightful Five. But, as he admits, AOL's disastrous merger with Time Warner was precipitated by public policy decisions that denied "open access," allowing cable companies to discriminate against content providers. "If we couldn't partner with a cable company, the thinking went, maybe we needed to buy one," Case writes.

That's just one example of how easily the scales can be tipped away from decentralized control. Greenstein cites another—antitrust law—noting that although the breakup of AT&T furthered technological development, today's rules are narrowly focused on how competition affects consumer prices rather than on the need for multiple perspectives in the innovation process.

It would be a stretch to call Jeff Bezos, Tim Cook, Mark Zuckerberg, Larry Page, or Satya Nadella the "manager of the internet." But the companies these people lead do represent a centralization of power, and each of them will have a disproportionate say in the network's future. Although the potential for innovation from the edges still exists, it's not inevitable.

Ms. Monisha D'costa
Source: Harvard Business Review

SANITATION IN RURAL INDIA:

Sanitation is one of the important Millennium Development Goals which covers the important aspects of management of human excreta, domestic and industrial wastewater and hazardous substances. It also includes reuse of recycled products which is part of this management. However, developing countries like India where highly increasing population leaves policy makers in worry to provide basic amenities; toilets are mainly focussed to manage human faces and urine. In order to achieve the MDG, Government of India has been running many policies like Nirmal Bharat Abhiyan (NBA) and Total Sanitation Campaign. Convergence has also been done with schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). However, it doesn't seem to be really an effort achieving the target in the time anyhow. So, Government has set a new deadline of 2022.

In 2004, 4 out of 10 people around the world have no access to improved sanitation (WHO). The highest proportion of deaths as well as the highest absolute numbers occurs in countries with high mortality patterns, such as in Africa and parts of South-East Asia. Most diarrheal deaths in the world (88%) are caused by unsafe water, sanitation or hygiene. In 2008, 2.6 billion people – 40 percent of the world's population -- had no access to improved sanitation facilities. India is one of these countries. Every year, 1.5 million children die due to diarrhea caused by the combined effects of inadequate sanitation, unsafe water supply, and poor personal hygiene.

People in rural areas use toilets inside house, defecate in open fields or use community toilets. In all these three utmost care must be taken. In our tradition it is mentioned that a small ditch should be used for defecation and covered by the nearby soil after the use. That way it worked as manure after decomposition and houses were well away from the excreta. One could freely do so without fear of being seen by others because population was very less. But in today's context, increasing population has put immense pressure on land as a result of which land holding size has become very small. So, it is almost not feasible to use such ditch concept for everyone in today's world. So, people just defecate in open and move on. It is the behaviour which is remained unchanged since last thousands of years. After so many efforts of many Civil Society Organisations (CSOs), Government agencies and Educational institutions, people began to adopt practise of using toilets. But mere using toilets, is not so simple that it can solve the problem of poor sanitation. There are various technical and behavioural aspects involved with it. We will closely examine these under the points below.

Mr. Pallav Das

Sourc: Personal Research Paper

Apps every student should get now:

Today, thanks to technology, a student's life is much easier with the numerous apps that help in making even the most mundane tasks simple.

The reality of our times is that every student, after a certain age, owns a smartphone or a tablet. Apart from just for the purpose of entertainment, there are several apps out there which are informative, educational and assist in the studying process. Now, with assignments being allotted

online, and smartphones helping us get 'smart' in the literal sense, downloading some of these apps can be a godsend for students.

We all know how frustrating it can be when a search engine doesn't give us the exact answer we're looking for and we have to go through multiple links of irrelevant information. Apps are designed to not only be user-friendly, but also show faster and more specific results. Sankalp Anand, a second year engineering student told us, "If I have to look for an answer for a complex quantum physics problem, a simple maths calculation, or want to know which medicine I should be taking for a particular disease, **WolfRam Alpha i**s an app which does it all. It also helps me with research projects as it gives specific answers to questions like the unemployment rate in a particular state, or with visual representation of the data. Even video tutorials are available for some questions on the app. The best part about it is that it's different from any search engine I've ever used —instead of giving multiple vague results for something, it gives you the specifics. For example, if I look for HTML blue, it gives me the hex code which makes it easier for me to work on any design software."

Apps to rescue you from other apps
You can spend endless hours on your smart phone, especially during study time doing literally anything else besides studying organic chemistry or the anatomy of a frog. For this purpose, there are many apps that help students concentrate better on their school or college work.

Anu Arora, mother of a 15 year old, said, "My daughter is always on her phone. Phones can be so distracting. One notification and she forgets what she was reading, so for students nowadays, **SelfControl App** is a saviour."

From sticking to deadlines to waking up on time to having the meaning of the most complex of words on your fingertips, we have compiled a list of apps to make a student's life a lot smoother.

Here are some Apps recommended for students

1) **WolfRam|Alpha**: Uses its vast collection of data to generate the best results, covering a wide range of subjects.
Price: Free with some paid features.
Available on: iOS and Android

2) **SelfControl**: Lets students block certain websites for a desired time and schedule their routine for multiple days to help them concentrate.
Price: Free
Available on: iOS and Android

3) Dropbox: Dropbox helps students keep all their notes and study material in one place, removing the fear of losing them or mysteriously deleting from their hard drives.
Price: Free
Available on: iOS and Android

4) Alarmy (Sleep if you can): An alarm app with a twist. It requires the user to do certain simple tasks, like clicking a picture or shaking the phone a certain number of times for the ringing to stop, helping the user wake up without hitting the snooze button.
Price: `160 on iOS and `165 on Android.
Free Alternative: Rocket Alarm.

5) Ridlr: It gives real time information on bus, metro and train timings, with cancellations, delays and alternative suggestions for transport.
Price: Free
Available on: Android

6) Dunno: A-research-it-later application which helps you jot down things you want to know or research, but don't have time to when it crosses your mind. It helps keep a record of all our 'brainslaps' (a term coined by the Dunno team for random thoughts that cross your mind).
Price: Free
Available on: iOS

7) Trello: A project management app which jots down tasks in the form of lists or boards which can be made public, where every user can assign others tasks with due dates.
Price: Free
Available on: iOS and Android

8) CamScanner: CamScanner is an app that uses the phone camera to scan an image and convert it into a PDF to easily share it over mail or text.
Price: Free
Available on: iOS and Android

9) Toshl: Pocket money often disappears before you know it. Toshl is an app which helps organise and keep a record of all expenses, with an option to add details for every expense.
Price: Free
Available on: iOS and Android

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Ms. MonishaD'costa
Source: timesofindia.com

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