



E-NEWS LETTER

Computer Applications

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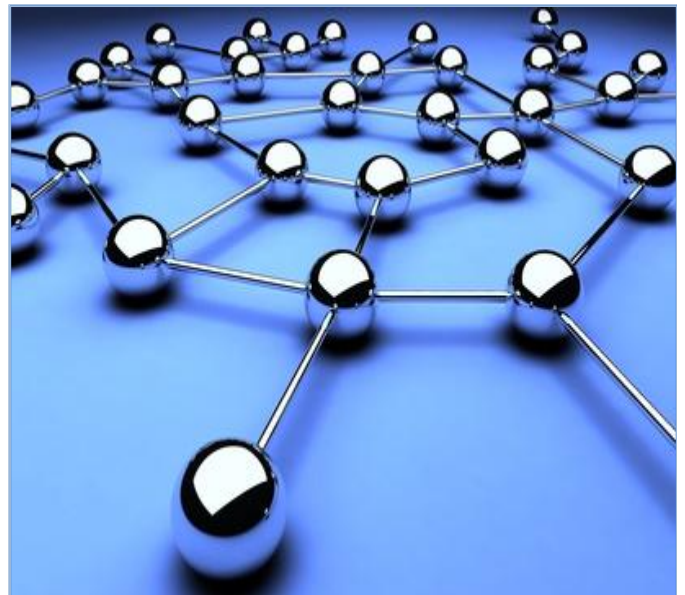
CONTENTS

Latest Update World	01-04
Students Corner	04-06
Faculty Arena	06-10

LATEST UPDATES WORLD

Engineer's Day Special: Gift of New Age Enterprise Software

The enterprise software that we know of today has been and is still in the midst of a revolution. Two decades back, the software powering businesses were feature-rich, complicated, un-engaging, and non-intuitive and could be managed only by a few experts. 'Beautiful enterprise software' which was unheard of in the past is a reality today due to the expectations from the millennial generation entering the workforce.



By Ranga Pothula, VP Global Centers of Excellence

This generation has been born into the digital age – banking on internet penetration, Smartphone usage, social media and applications that are attractive and user-friendly. Owing to this, the new age workforce, including highly qualified engineers, look forward to a work experience on par with the mobile, social and application experiences they have in their personal lives.



Unappealing and unwieldy software is no longer welcome or acceptable; the time is now for usable and beautiful innovations to take over the professional arena as well. Take for instance the manufacturing sector, an engineer in the shop floor would choose consumer-inspired user experience designed to mirror personal technology. This would streamline processes, enhance productivity and when built to suit the industry, would empower each and every employee to complete tasks with last mile functionality. These characteristics in applications are not only what engineers today need, but what they deserve.

Era of on-the-go everything

Mobility has come a long way from just enterprise email and data on the move. Today, we are looking at access and use of applications and services on-the-go to minimize the risk of non-compliance with specifications and improve quality control.

In a manufacturing setup, for instance, this would mean attention to unit and component detail to get greater control over versions, high tech components, and fast-changing product specifications. For engineers from the millennial bracket, internet and mobile technology are an integral part of their lives and they consider it as an advantage in a work environment.

Perfect combination of Beauty and Brain

Understanding the present generation employee outlook has led to consumer zing user experience by way of building beautiful applications. But with the changing technology landscape and business environment, challenges continue to expand and it is important to focus on software that looks good and works well – both beauty and brain are key. The perfect amalgamation of the two is bound to have more positive impact on the way all people work, ending the monopoly of select experts.



Smart enterprises

In the wake of new approaches and innovations in the B2B enterprise space, there have been advanced applications of existing technology. With 2.5 quintillion bytes created every day, companies are sitting on a treasure trove of data. Data is exploding at an unprecedented pace. Ninety percent of all of the data in the world was created in just the past two years. Every year

from now, that data will double. All these figures and projections point towards the symbiotic relationship of enterprise success and the optimization of data science and its potential. The successful companies of the future will be the ones that turn big data into smart data, and build that data into the core of their businesses for enhanced decision making.

Engineers on Cloud 9

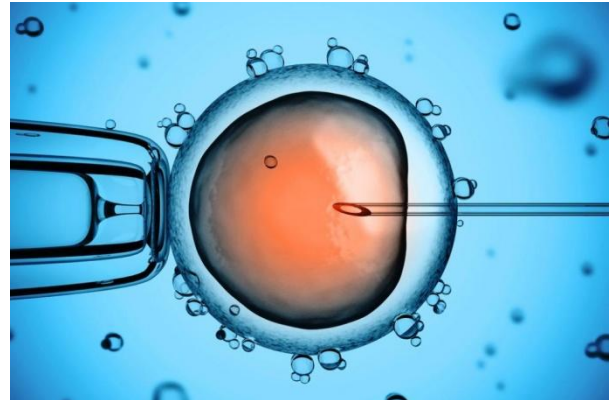
Much has been spoken about the benefits of cloud; in a nutshell, enterprises that adopt cloud are able to streamline processes, and free up capital, while giving the necessary flexibility to meet evolving operational needs. In a recent IDG survey, almost half of all respondents (46%) said deploying cloud-based business applications is essential or very important to their expansion strategy. This can be attributed to the fact that cloud allows for focus on moving business strategy forward, while their cloud vendors take on some of the burden of finding specialized IT skills, meeting compliance requirements, and keeping systems properly maintained and upgraded.



The changing demographics of the workforce rise of startups with competitive products and services, evolving social platforms and disruption of traditional workplaces (among others) have given enough reasons for large enterprise software companies to step up their game. Engineers form a pivotal part of this ecosystem and are at the receiving end of the application spectrum in many cases. Understanding their

needs and expectations will go a long way in defining the success of solutions providers and the future of enterprise software.

From indoor farms to neural nets, this tech will change the world in 2016



2015 was a big year for tech. We made a lot of discoveries and reached a lot of major milestones — but 2016 is poised to be even crazier. In a lot of ways, 2015 laid the groundwork for much bigger things, so instead of looking back and recapping humanity’s technological achievements, lets take a look forward and examine the technologies that will have the biggest impact on 2016.

Artificial neural networks

Artificial neural networks are already here, but they’re poised to get even bigger, badder, and more sophisticated in the next couple years. If you’re unfamiliar, ANNs are basically simulated brains that are run on traditional computers. It’s important to note that in these simulated brains, we can give the software “neurons” basically any programming we want. We can try to set up their rules so their behavior mirrors that of a human brain, and we can also use them to solve problems in ways that nobody has ever dreamt of before.

You might not realize it, but you probably use ANNs in your day-to-day life. Google

and Facebook use them to recognize objects in your photos; shipping companies use them to optimize delivery routes; and big credit card companies use them to detect fraudulent transactions. But the thing is, all of this is done behind the scenes, so we're often not even aware of what's happening. Moving forward, ANNs will continue to work in the background of our lives, but they'll power much more sophisticated things — such as self-driving cars, next-generation drone delivery systems, and increasingly-intelligent virtual assistants.



The Blockchain

Bitcoin has left an indelible mark on the modern world, but the technology it's built on might actually end up having a bigger impact. The Blockchain, as it's called, is a decentralized, widely distributed public database used to record Bitcoin transactions. It started off as the public ledger for a digital currency, but lately it's begun to branch out and find applications outside of Bitcoin. Programmers are now using it to build things like distributed cloud storage solutions that are impervious to outages, self-executing contracts, and alternatives to our ridiculously complicated patent system.

In the future, the Blockchain could even be used to build a tamper-proof electronic voting system that's immune to political corruption. And this is just the beginning. There are already a large number of startups out there using the technology in new (and potentially game-changing) ways,

and they'll only become more abundant in 2016.



STUDENTS CORNER

Smartphone-Connected Contact Lenses Give New Meaning to 'Eye Phone'



Apps allow you to link your smartphone to anything from your shoes, to your jewelry, to your doorbell — and soon, you may be able to add your contact lenses to that list.

Engineers at the University of Washington have developed an innovative way of communicating that would allow medical aids such as contact lenses and brain implants to send signals to Smartphone's.

The new tech, called "interscatter communication," works by converting Bluetooth signals into Wi-Fi signals, the engineers wrote in a paper that will be presented Aug. 22 at the Association for Computing Machinery's Special Interest

Group on Data Communication conference in Brazil.

"Instead of generating Wi-Fi signals on your own, our technology creates Wi-Fi by using Bluetooth transmissions from nearby mobile devices such as smartwatches," study co-author Vamsi Talla, a research associate in the Department of Computer Science and Engineering at the University of Washington, said in a statement. Interscatter communication is based on an existing method of communication called backscatter, which lets devices exchange information by reflecting back existing signals. "Interscatter" works essentially the same way, but the difference is that it allows for inter-technology communication — in other words, it allows Bluetooth signals and Wi-Fi signals to talk to each other.

Interscatter communication would allow devices such as contact lenses to send data to other devices, according to the researchers. Until now, such communication had not been possible, because sending data using Wi-Fi requires too much power for a device like a contact lens. To demonstrate interscatter communication, the engineers designed a contact lens equipped with a tiny antenna. The Bluetooth signal, in this case, came from a smartwatch. The antenna on the contact lens was able to manipulate that Bluetooth signal, encode data from the contact lens and convert it into a Wi-Fi signal that could be read by another device.

And though the concept of "smart" contact lenses may seem a bit gimmicky, they could, in fact, provide valuable medical information to patients.

For example, it is possible to monitor blood sugar levels from a person's tears. Therefore, a connected contact lens could track blood sugar levels and send notifications to a

person's phone when blood sugar levels went down, study co-author Vikram Iyer, a doctoral student in electrical engineering, also at the University of Washington, said in a statement. (Monitoring blood sugar levels is important for people with diabetes.)

The researchers also said interscatter communication could be used to transmit data from brain implants that could one day help people with paralysis regain movement. Not all of the potential applications are related to medical devices, however. Interscatter communication could also exchange information between credit cards, the researchers wrote. This would allow people to transfer money between cards by simply holding them near a smartphone, for example, they said.

Abhinav Srivastava
MCA-2015

New Wi-Fi features in Windows 10 Anniversary Update

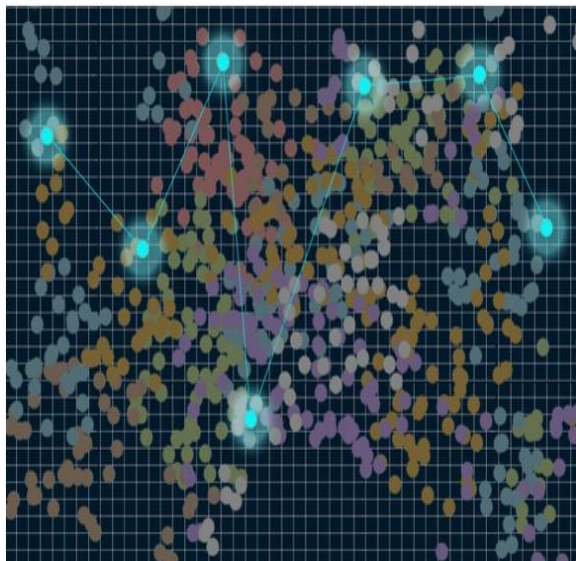


Last month Microsoft debuted its first major update to Windows 10, technically called version 1607 but generally known as the Anniversary Update. You may have seen stories around the web delving into the update's general improvements including a smarter Cortina, Edge extensions and Windows Ink, but rarely have the Anniversary Update's new Wi-Fi and networking features and interfaces been discussed.

In this story I'll go into detail about these changes -- useful knowledge whether you're a network admin, an IT pro, or just a tech enthusiast. If you ever help with troubleshooting connections or are just a regular old user of networks, knowing the interface changes and new features can really help.

Shubhrat Mishra
MCA-2015

This new programming language promises a 4X speed boost on big data



Kiriansky and other researchers from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) have created Milk, a new language that lets application developers manage memory more efficiently

in programs that deal with scattered data points in large data sets.

Essentially, Milk adds a few commands to Open MP, an API for languages such as C and FORTRAN that makes it easier to write code for multi core processors. Using it, the programmer inserts a few additional lines of code around any instruction that iterates through a large data collection looking for a comparatively small number of items. Milk's compiler then figures out how to manage memory accordingly.

With a program written in Milk, when a core discovers that it needs a piece of data, it doesn't request it -- and the attendant adjacent data -- from main memory. Instead, it adds the data item's address to a list of locally stored addresses. When the list gets long enough, the entire chip's cores pool their lists, group together those addresses that are near each other, and redistribute them to the cores. That way, each core requests only data items that it knows it needs and that can be retrieved efficiently.

In tests on several common algorithms, programs written in the new language were four times as fast as those written in existing languages, MIT says. That could get even better, too, as the researchers work to improve the technology further.

Shubhrat Mishra
MCA-2015

FACULTY ARENA

App vs. Website: Which best protects your privacy?

Context

Both apps and websites leak personal information, including names, gender, phone numbers, and e-mail. But don't despair. Northeastern researchers, led by assistant

professor David Choffnes, have developed an automated system to help you ...more.



That's the question that Northeastern researchers, led by assistant professor David Choffnes, ask in new research that explores how free app- and web- based services on Android and iOS mobile devices compare with respect to protecting users' privacy.

In particular, the team investigated the degree to which each platform leaks personally identifiable information—ranging from birthdates and locations to passwords—to the advertisers and data analytics companies that the services rely on to help finance their operations.



The answer?

"It depends," says Choffnes, a mobile systems expert in the College of Computer and Information Science. "We expected that apps would leak more identifiers because

apps have more direct access to that information. And overall that's true. But we found that typically apps leak just one more identifier than a website for the same service. In fact, we found that in 40 percent of cases websites leak more types of information than apps."

Those types of information vary, based on the platform. For example, the researchers found that websites more frequently leak locations and names, whereas only apps were found to leak a device's unique identifying number.

The researchers will present their findings in a paper at the 2016 Internet Measurement Conference, in Santa Monica, California, in November.



The team's aim is to help users make informed decisions about how best to access online services. To that end, they have integrated their findings into an easy- to- use interactive website that rates the degree of leakiness of 50 free online services, from Airbnb to Zillow, based on each user's privacy preferences.

Here's how it works

Users select from a drop- down list of 50 services and check off whether their operating system is Android or iOS. Next they're asked to rate various types of personal information, from their birthdates to their devices' unique identifiers, they care most about keeping private. Then,

automatically, the site generates two "leakiness indexes" for the service selected—a sky blue bar for the app version, a lime green one for the web—and recommends which platform is best for that particular user.

"There's no one answer to which platform is best for all users," says Choffnes. "We wanted people to have the chance to do their own exploration and understand how their particular privacy preferences and priorities played into their interactions online.

For the study, the researchers selected 50 of the most popular free online services in a variety of categories, including business, entertainment, music, news, shopping, travel, and weather. Each service had to offer the same functionality on both its website and app. To ensure that they were interacting with the services as everyday users would, the researchers conducted manual, rather than automated, tests, personally logging in, entering requested user data into text fields, and navigating the environment.



Both apps and websites, they found, leaked locations, names, gender, phone numbers, and e-mail addresses to varying degrees. But there were surprises. "We didn't expect to find the diversity of information collected across the different platforms even for the same service," says Choffnes. Moreover, four services sent encrypted passwords to

another party: the Grubhub app, unintentionally, due to a bug, which has been fixed; the JetBlue app, for authentication purposes; the Food Network app and website, for identity management; and the NCAA website, for identity management.



"The reasons for the intentional leaks are legitimate, and I'm sure that the services have appropriate agreements with the other parties to protect the passwords," says Choffnes. "But the practice still raises an important issue: Users have no idea that their passwords are being sent to another party." Consider: JetBlue customers making an airline reservation likely assume they are submitting their passwords to JetBlue for authentication, when in fact their credentials are being managed by a third party, Useablenet.

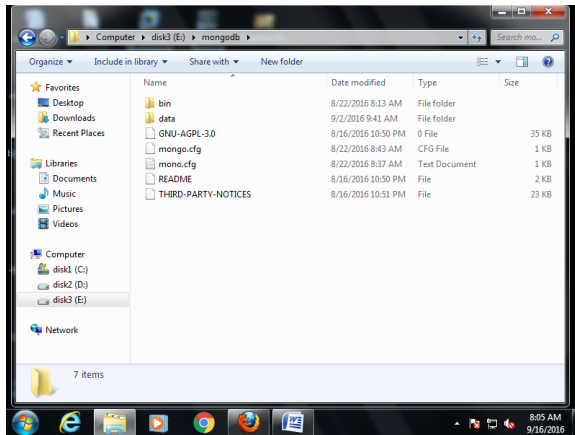
Conclusion

Choffnes hopes that the findings will start a dialogue between consumers and online services about the kinds of information that should be collected, balancing the services' revenue needs with consumers' privacy needs. "My goal is not just to tell people a scary story but to issue a call to action," he says. "Part of that action could be that users start requesting or even demanding the privacy and transparency considerations they want from the companies they interact with."

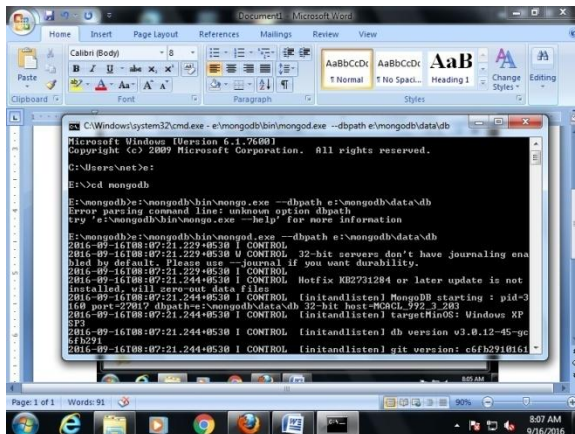
Saurabh Jha
Asst. Professor

Collection Creation on MongoDB

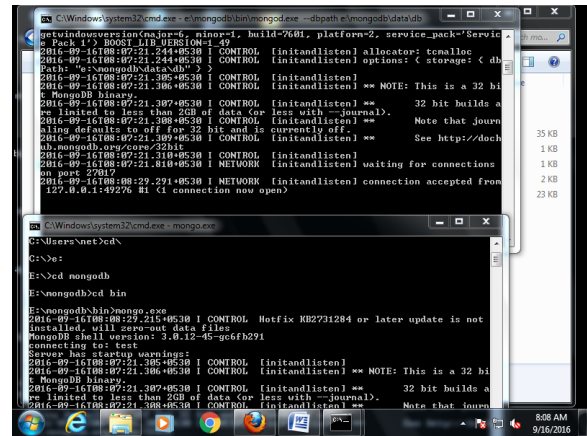
Mongo DB has rapidly grown to become a popular database for web applications and is a perfect fit for Node.JS applications, letting you write Javascript for the client, backend and database layer. Its schemaless nature is a better match to our constantly evolving data structures in web applications, and the integrated support for location queries is a bonus that's hard to ignore. Throw in Replica Sets for scaling, and we're looking at really nice platform to grow your storage needs now and in the future.



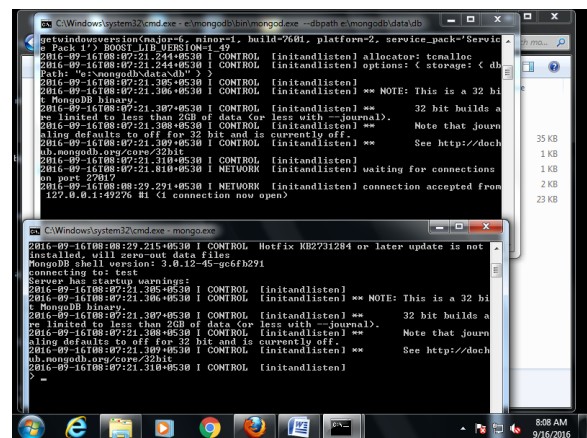
In this step I have create the basic structure for mongodbd.



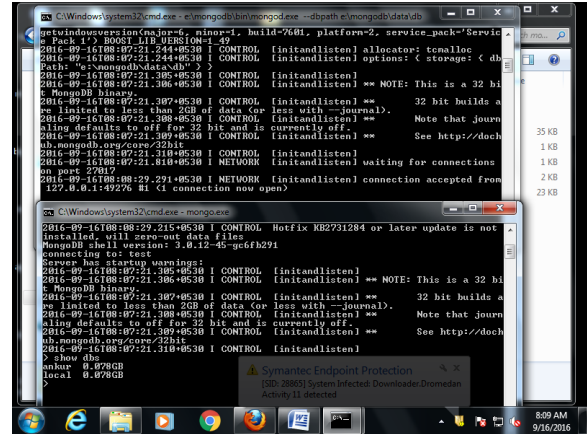
Here connections are intialised, and start the server of mongodb.



In this step client is connected with mongodbd



In this step we can create the database.



Here database is created.

```

C:\Windows\system32\cmd.exe - e:\mongodb\bin\mongo.exe --dbpath e:\mongodb\data\db
2016-09-16T08:13:19.556+0530 I STORAGE [FileAllocator] allocating new datafile
e:\mongodb\data\db\arvind_0 filling with zeroes...
2016-09-16T08:13:19.557+0530 I STORAGE [FileAllocator] creating directory e:\mo
nodb\data\db
2016-09-16T08:13:20.028+0530 I STORAGE [FileAllocator] done allocating datafile
e:\mongodb\data\db\arvind_0, size 4096, took 0.451 secs
2016-09-16T08:13:20.407+0530 I NETWORK [connec] and connection 127.0.0.1:49302 <
1 connection now open>

C:\Windows\system32\cmd.exe
2016-09-16T08:08:29.215+0530 I CONT
installed, will zero-out data files
MongoDB shell version: 3.0.12-45-gc
connecting to: test
Server has startup warnings:
2016-09-16T08:07:21.385+0530 I CONT
6 MongoDB binary
2016-09-16T08:07:21.387+0530 I CONT
re limited to less than 2GB of data
2016-09-16T08:07:21.388+0530 I CONT
aling defaults to off for 32 bit an
2016-09-16T08:07:21.389+0530 I CONT
sh.mongod.org/core/22bit
2016-09-16T08:07:21.318+0530 I CONT
> show dbs
local 0.678GB
test 0.678GB
> show logs
arvind 0.678GB
arvind 0.678GB
>
E:\Big Data>set classpath=e:\Big Data\mongo-java-drive
E:\Big Data>java App.java
E:\Big Data>java App
{"_id":"<"oid":"7db5c47be0d7c268ea5a984","na
","createdDate":<"date":<"2016-09-16T08:13:19.1
","id":"<"oid":"7db5c47be0d7c268ea5a984","na
age":30,"createdDate":<"date":<"2016-09-16T08
Done
E:\Big Data>

```

In this step we set the classpath of java mongodriver to compile and run the java programme.

```

C:\Windows\system32\cmd.exe - e:\mongodb\bin\mongo.exe --dbpath e:\mongodb\data\db
2016-09-16T08:13:19.556+0530 I STORAGE [FileAllocator] allocating new datafile
e:\mongodb\data\db\arvind_0 filling with zeroes...
2016-09-16T08:13:19.557+0530 I STORAGE [FileAllocator] creating directory e:\mo
nodb\data\db
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e:\mongodb\data\db\arvind_0, size 4096, took 0.451 secs
2016-09-16T08:13:20.407+0530 I NETWORK [connec] and connection 127.0.0.1:49302 <
1 connection now open>

C:\Windows\system32\cmd.exe
2016-09-16T08:08:29.215+0530 I CONT
installed, will zero-out data files
MongoDB shell version: 3.0.12-45-gc
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6 MongoDB binary
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re limited to less than 2GB of data
2016-09-16T08:07:21.388+0530 I CONT
aling defaults to off for 32 bit an
2016-09-16T08:07:21.389+0530 I CONT
sh.mongod.org/core/22bit
2016-09-16T08:07:21.318+0530 I CONT
> show dbs
local 0.678GB
test 0.678GB
> show logs
arvind 0.678GB
arvind 0.678GB
>
E:\Big Data>set classpath=e:\Big Data\mongo-java-drive
E:\Big Data>java App.java
E:\Big Data>java App
{"_id":"<"oid":"7db5c47be0d7c268ea5a984","na
","createdDate":<"date":<"2016-09-16T08:13:19.1
","id":"<"oid":"7db5c47be0d7c268ea5a984","na
age":30,"createdDate":<"date":<"2016-09-16T08
Done
E:\Big Data>

```

In this step programme compiled and run, and database created and value inserted into the table.

Arvind Mishra
Asst. Professor