



# ANVIKSIKI (आन्वीक्षिकी)

Special Issue 1, MARCH 2017

## "Data Matures like wine, Applications like fish"

Business are buckling under the deluge of Petabytes, Exabyte, and Zettabytes. Within these bytes lie valuable information on customer behavior, key business insights, and revenue generation. However, all that data is practically useless for businesses without the ability to identify the right data. Analytics has the power to change the present business by observing the huge lumps of data present in the past, transform the business scenario of the company. The involvement of analytics has become a core necessity such that it has become a separate industry by itself.

The course B.Voc (Analytics) is a UGC sponsored full time 3 year degree course, with tailor-made syllabus including subjects like- Statistics, Econometrics, Financial Mathematics, Digital

Analytics, Introduction to Analytics, Analytics in BFSI, Healthcare and Pharmacy, CPG and Retail, Business Intelligence and Reporting, SAS, R, Microsoft Excel, Data mining, New Age Analytics.

Knowledge was shared by the industry experts working with prestigious companies like Accenture, Adobe, Analytic Edge, Cit Bank, Dell, IBM, Oracle, Subex, TCS and Walmart.

The experience we got was very different from regular courses since we were exposed to a lot of practical knowledge and know-how of real life scenarios, data, problems and solutions.

-Neha Demta  
III B.Voc (Analytics)

## Applications of Analytics

Business Analytics is used in various field like finance, marketing, security etc.

For example a common application of business analytics is portfolio analytics. Suppose, a financial institutions collects accounts of varying value and risk. The accounts may differ by the social status (wealthy, middle-class, poor etc.) of the holder, the geographical location and many more. This is a huge data. How do we handle it? The least risk loan might be very wealthy, but they are very less in number. On the other hand, there are many poor that can be lent to, but at greater risk. Some balance must be struck

that maximizes return and minimizes risk.

The analytics solution may combine time series analysis with many other issues in order to make decisions on when to lend money to these different borrower segments, or decisions on the interest rate charged to members of a portfolio segment to cover any losses among members in that segment.

-Srividya Kalyan  
I B.Voc (Analytics)

## WORD FROM THE DESK



Sister Principal  
Dr. Sr. Arpana

### "Torture the Data until it confesses"

Analytics is gaining ground with the advent of technology as it can compile data in a form that is compliant to analysis leading to decision making. Analytics as a standalone business process has gained pre-eminence in the past 15 years.

Exploring business analytics needs the right focus, right technology, right people, right culture and top management commitment.

Wishing all the Analytics students the very best in all their future endeavors.



Head of Department  
Dr. S.K. Lakshmi

It gives me immense pleasure and pride that the Department of Statistics and Analytics have their Newsletter 2.0 "Anviksiki" one that is dedicated completely to ANALYTICS. I take this opportunity to express my gratitude to the student team which has put in lots of efforts to bring out the maiden issue.

Data sets, whether in Science and Engineering, Sports, Politics, Economics, Health care or Business has been growing at a furious pace, giving rise to a number of challenges with respect to analysis of this data and its use.

The aim of "Anviksiki" is to provide the readers small pieces of information on the role of Analytics in the different domains; in addition the students can showcase some of their activities.

## Power of Tools

In the journey of three years in this course we have learnt the below tools for analysis.

**R**-in this course, we are give an introduction to the R environment and explain how it can be used to import, manipulate and analyse both structured and unstructured data. We have used R for data mining, model building, text mining and many more.

**MYSQL**-is the most popular language we used for adding, accessing and managing content in a database. It is most noted for its quick processing, proven reliability, ease and flexibility of use.

**SAS**- It is a step by step programming software suite that we used to mine, alter, manage and retrieve data from a variety of sources and perform statistical analysis on it.

**Excel**- The most widely used analytics tool in our course. Although we learnt analysing in R and SAS, we still use Excel for the grunt work. We used it for not only doing basic data computations, but also performed data analysis using it.

There are many other analytical tools such as Tableau, Python, SPSS etc. used for analysis.



*"Define and Predict Future with the Power of Tools"*

-Asma Begum III B.Voc (Analytics)

## "If you torture the data long enough, it will confess to anything"

Scott Adams, creator of the Dilbert comic strip rightly said "If you mine the data hard enough, you can also find messages from God. We were exposed to Data mining in the third year and since then we have newly acquired interest in it.

Data mining helps in discovering patterns in data sets involving methods at the intersection of artificial intelligence, machine learning, statistics, and database systems. It involves analyzing data from different perspectives and summarizing it into useful information - that can be used to increase revenue, cuts costs, or both.

Though data mining is a relatively new term, the technology is not. Continuous innovations in computer processing power, disk storage, and statistical software are increasing the accuracy of analysis.



-Sahana Pujar, III B.Voc (Analytics)

## Paradigm of Analytics

Here are some examples using big data to treat customers more like individuals — and build better long-term relationships so those customers happily experience your services more and more.

### Identify customer pain points and solve them:

- Take Delta. All airlines know a top concern for passengers is lost baggage, particularly when they are on a flight that's delayed and missed connections involved. Delta looked further into their data and created a solution that would remove the uncertainty of where

a passenger's bag might be. Customers can now snap a photo of their baggage tag using the "Track My Bag" feature on the Delta app and then keep tabs on their luggage as it makes its way to the final destination. Even if a bag doesn't make it on the intended flight, passengers save time tracking it down. Finding a new way to put big data to use for the benefit of their passengers put Delta out front in a competitive market.

**Improve customer service interactions:** When a customer reaches out, the representative can

more quickly and efficiently solve the problem if they have the right data in front of them. They won't need to ask as many questions of the customer because they already know the answers. Southwest Airlines, for example, is using speech analytics to extract data-rich info from live-recorded interactions between customers and personnel to get a better understanding of their customers.

-Shalini Singh, III B.Voc (Analytics)

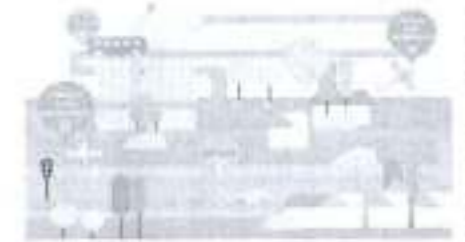
### How Analytics can make your city smarter?

For many of us, the term "smart city" conjures up images of sensors collecting data about everything from traffic patterns to energy use.

Analysis begins with a problem! What issue do you want to solve? What task needs to be simplified? Many local governments integrate their databases and start using analytics to solve one problem. After gleaning value from that first solution, they begin to use analytics to solve other problems throughout the organization. Below is an example of how analytics can be used to simplify tasks for government organizations.

winning the US Department of Education's coveted Blue Ribbon award. Yet there was one group of students the district wanted to serve better: those with learning disabilities. By using Pennsylvania's Value-Added Assessment System (PVAAS), the district was able to better track year-to-year growth of all students. The result: A decade ago, learning-disabled 11th graders showed 14 percent proficiency in math and 29 percent proficiency in reading on state-mandated tests.

benefit foster children. How is your city getting smarter with analytics?



**Education:** The Fox Chapel Area School District outside Pittsburgh has earned numerous accolades, with each school in the district

**Conclusion:** Analytics can help prioritize resources in disaster relief efforts and measure the results of innovative new programs to

- Shethwala Raahat II B.Voc (Analytics)

### Social Media Analytics

Online social media have gained astounding worldwide growth and popularity which has led to attracting attention from variety of researchers globally, making teenagers and young adults the most fanatic users of these sites such as Twitter, Facebook Myspace etc.

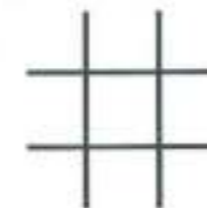
As Social Media engagement is increasing tremendously, it can be easily used to derive data and help business make real-time insights and understand the areas which need to be improvised to increase the revenues of the company. Using metrics like Click Through Rate, Impressions, Conversion rate, Bounce rate, business can know what the customers are thinking about the products which are advertised, which makes it easy for them to target audience.

Once we get the data, there are few tools which can be used to analyze the data. Some of them are Sentiment Analysis, Topic Modeling, and Trend Analysis etc. where we can know what are the future trends, what is the sentiment towards their product. Hence now-a-days, Social Media plays an important role from advertising to analyzing the data



- Bhumi Joshi III B.Voc (Analytics)

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You have to place all the digits from 1 to 9 without repeating any number in a tic-tac-toe board.

So, that the numbers should add up to 15 whether you add the numbers in each row, column or diagonally.

8 4 3  
1 5 9  
2 6 7

"It's easy to lie with statistics. It's hard to tell the truth without statistics."

- Andrejs Dunkels

**CAMPUS DIARIES**

Science fest - "PRATHIBIMB-DVIDAL"

The Department of Statistics and Analytics organized two events and screened a Documentary for the Science Fest held on December 15<sup>th</sup> 2016.

The documentary "Anathon" screened the evolution of IoT, digitization and connectedness. It showcased network between machines, humans and the internet, leading to the creation of new ecosystem that enables efficiency and higher profitability.

Event1: Data Footrace: The participants were given a dataset and had to complete three levels (Quiz, Data Exploration, Data Visualization) to win.

Event2: Game Analytics: Three different datasets were provided to the participants and they were asked to perform any kind of analysis using one dataset and provide a one page report in Microsoft Word and present the same.

K-Sharing (Knowledge Sharing)

When you learn, teach. When you get, give. Knowledge sharing is an initiative taken by the Department of Statistics and Analytics through which knowledge is exchanged with the students of other combination. The students of I & III BVoc (Analytics) shared their knowledge on Microsoft Excel and Data Cleaning with the students of class III and II CMS & EMS respectively.

SPSS

In addition to the tools included in our syllabus, a workshop on SPSS was conducted for the interested students.

SKILL ASSESSMENT

NASSCOM (National Association of Software and Services Companies) is the industry association for the IT-BPM sector in India. It is a non-profit organization funded by the industry.

Mount Carmel College has signed a MoU with SSC (Sector Skill Council) NASSCOM for carrying out the skill assessment of the students of B.Voc (Analytics).

The National Skills Qualifications Framework (NSQF) is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills and aptitude. These levels, graded from one to ten, are defined in terms of learning outcomes which the learner must possess.

The first batch of B.Voc (Analytics) appeared for the NSQF level 5 exam in July 2016; 23 students out of 24 cleared the exam. The second batch appeared for this exam in January 2017. All of them cleared the exam.

**"Information is the new oil, of 21st century and Analytics is the combustion engine"**

In the recent times, organizations are looking for a way to focus their attention in increasing their business revenues while cutting the operational costs.

The world is now awash in data, with IoT and big data clearly growing apace. Live Business systems require powerful, consistent information systems that tie information across many different aspects of the customer journey. It stands to reason that companies will quickly need to learn how to handle massive amounts of data, thus making the future of software all about analytics, analytics and analytics, since numbers have an important story to tell. They rely on you to give them a voice.

There are a collection of software and programming language like R SAS Hadoop and SQL etc. that in turn tips analytics needs towards greater consistency and governance.

Understanding the data and finding the right question to ask is often much more complicated than getting your Hadoop job to run quickly, and that's where a skilled Analyst come in demand. With the ability to understand and gain insights from the data, Analysts can help uncover and mine the hidden patterns in the data, that will help turn data into information and information to insight.



- Muskaan Jindal, III BVoc(Analytics)

When you interview a data scientist...



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