

KIST Newsletter

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Towards Innovative Connectivity

A distinctive educational institution, KIST is known for creatively connecting all its stakeholders, especially the youth. Committed to professional excellence, we forever strive to maintain top scholastic standards for our entire student community, and simultaneously further our acclaimed legacy of shared innovative practice.

Notably, KIST has been at the forefront of original offerings to its own students, and even the student community at large. The College believes in foraying into the Future be it Robotics or AI, and espouses free intellectual engagement through its ground-breaking contribution to the Kathmandu eduscape: *Imagineering!* There are going to be plenty of activities and much information disseminated in this singular occasion too.

The 5th KIST Newsletter coincides with our 5th Fair covering Science, IT, and Management. This delightful event is on Saturday, 07 December, 2019, in our pleasant, centrally-located premises. It gives our College a wonderful chance to boost connectivity among students, teachers, educators, professionals, and intellectuals through ongoing collective practice and pragmatically creative discussion.

While the purpose of this Fair is to provide our esteemed visitors with some knowledge, engage them productively, and foster positive thinking via globally popular infotainment, the idea behind our latest venture is to start active collaboration between schools and colleges, and at the same time encourage

a range of young minds to innovate all the more in SciTech, Management, Business, and Arts & Crafts.



Fostering Talent
SCIENCE • IT • MANAGEMENT
21 Mangsir 2076, Kathmandu

What's more, we have something entirely new this time for our dear visitors!

We plan setting up a select panel of displays and info-inputs about the history of human communication up to the current, mind-boggling advancements in IT alongside fresh possibilities of interaction. This should lead us towards realizing our concept of an *IT museum*...

We, at KIST, promise to do our best to become a torchbearer for youngsters seeking better understanding of this complex world. Let their keen minds, kind hearts, and pure souls blossom! We sincerely hope that this Fair shall be another small, firm step in this noble direction.

The KIST experience endures.



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DNA Barcoding

A Molecular Approach in Forensics and Conservation

Nirajan Thapa Kshetry

Introduction

DNA sequencing-based identification is becoming more common in routine laboratory work and species identification. The DNA based identification tools exploit diversity among DNA sequences to identify organisms and employ DNA sequences as 'barcodes'. The advantages of using DNA barcoding in forensic science and conservation genetics are that the same method is used across multiple taxonomic groups, and it also allows the identification of parts or modified products of organisms that do not display specific morphological characters. The most common molecular method of species identification is the sequencing of regions in mitochondrial DNA (mtDNA). The Cytochrome b (Cyt b) gene, cytochrome oxidase I (COI) gene, 12S rRNA and 16S rRNA region and the hypervariable or control region (HV) found within the D-loop region of the mitochondria has been commonly used as DNA barcodes in the field of forensic genetics, species identification, population genetics, phylogenetic studies and conservation genetics.

locus for barcoding to develop a widely accepted simple diagnostic tool based on strong taxonomic knowledge that is collated in the DNA barcode reference library published in the Consortium for the Barcode of Life (CBOL).

Wildlife DNA Technology

Wildlife crime is a global problem and it involves four major categories: (1) illegal killing or poaching; (2) possessing and modifying; (3) trading, shipping or moving; and (4) inflicting cruelty to wildlife. Illegal wildlife trade is a multi-billion-dollar industry that is threatening the world's biodiversity. There is an increasing demand for species identification in the fields of international trade and forensics. Identification of wildlife parts and products is always a challenging task. In many criminal cases, morphological and microscopic examination is sufficient for the identification of such specimens upon the availability of reference data. But many samples received in a forensic laboratory are naturally degraded, old, modified or carved, and diagnostic morphological features may be absent. In such conditions where traditional techniques are inadequate, DNA based identification methods may be useful for the proper identification of samples.

DNA based identification methods are routinely being used in forensics for human identification using short tandem repeats (STRs), mitochondrial sequences of hypervariable regions (HV) and single nucleotide polymorphisms (SNPs). The basic set up and the technicality is very similar and wildlife forensic genetics also applies methods used in human identification, taxonomy and phylogenetics for purposes related to wildlife crime. Different studies using cytochrome b and cytochrome oxidase I indicate that there are enough regions of variability for the primers to distinguish between different species.

General Methodology

There are a number of different extraction methods for different types of samples. By using these extracted DNA templates, the target region is amplified by a polymerase chain reaction (PCR). The universal primers allow for the amplification of species-specific fragments of DNA which can be sequenced and compared to a reference sample.

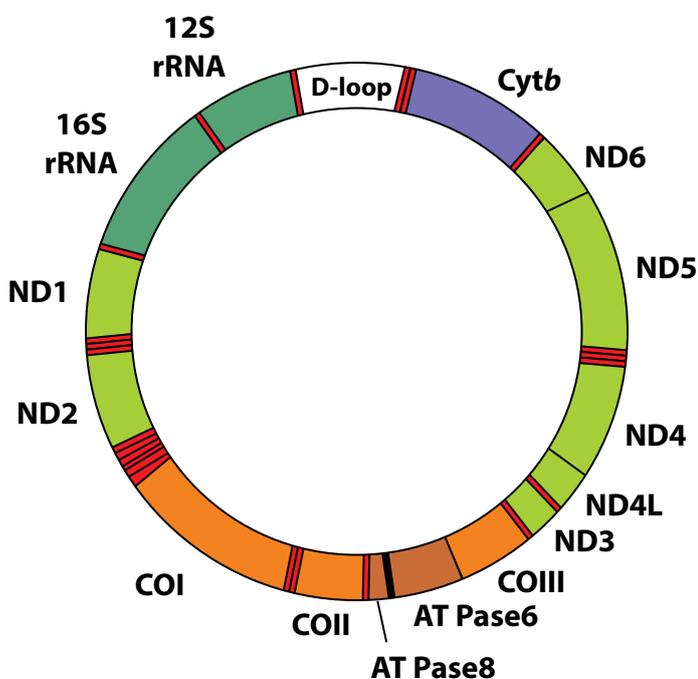


Fig. 1 Mitochondrial DNA regions

Cytochrome b has both variable and conserved regions and is a widely used locus. It has the widest taxonomic representation in GenBank at National Centre for Biotechnology Information (NCBI) database. The DNA Barcode of Life initiative proposed the use of COI gene

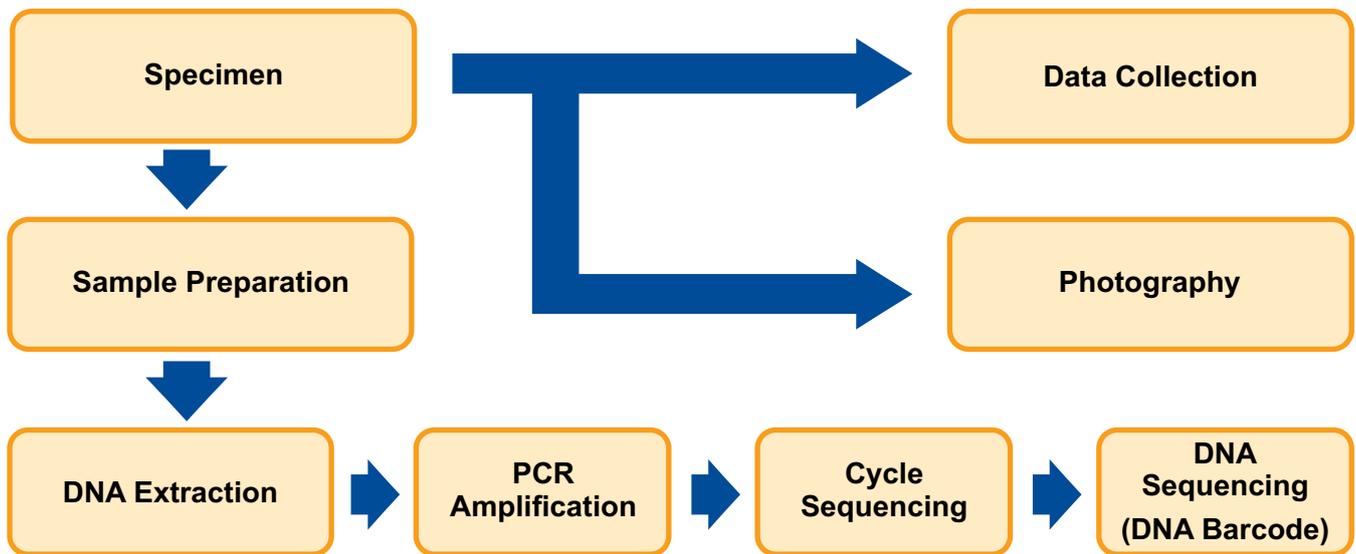


Fig. 2 DNA Barcoding method

Application and Challenges

The application of molecular identification techniques has gained popularity in every field of biological sciences after the widespread development and application of PCR. The biological samples in minor quantities can be useful for the identification of species with high degrees of specificity and reliability. The development and standardization of various DNA isolation techniques has made it possible to apply such techniques to forensic genetics. The locus used in species testing usually has very little intraspecific variation, and commonly all members of the same species will produce the same results. Various universal primers are available for DNA barcoding and many of them have proven useful for the identification of biological specimens to species level and even subspecies level. The use of mitochondrial DNA regions has proven effective and applicable for species identification. Although a minute quantity of any sample is deemed sufficient for DNA barcoding, some highly degraded samples may not generate sufficient sequence data while some other samples may even produce mixed sequences as a result of contamination. The most common application has been species identification, but increasingly DNA is being applied to analyze the geographic location of origin or to prove or disprove claims that a listed species has been captive bred as opposed to its having been taken from a wild population.

For DNA barcoding application to forensics, the available database of taxonomic reference sequences, is currently very limiting. Free access to the open database of DNA sequences kept in the NCBI and other third-party databases is quite invaluable for wildlife forensic science. It provides the preliminary identification of any new or unknown DNA sequence within seconds.

The disadvantage is that these databases are not well-regulated and hence errors or contaminated sequences can lead to misidentifications requiring laboratories to maintain an in-house database for legal purposes.

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Data Science and Machine Learning

Challenges and Opportunities in Nepal

Tej Bahadur Shahi & Surya Bahadur Basnet

Background

Data science is a systematic exploration of data. Data can be acquired in various ways such as using sensor devices, social media, customer records and other input devices. The main challenge of data science is how to explore insightful knowledge from such data so that we can use this information for our benefit. For example, if you are using Facebook – one of the popular social networking sites – and you do like, share and comment on the different posts that appear on your wall, by these activities, Facebook collects data about your choice, preference and behavior. On the basis of information obtained by processing such data, Facebook generates or sends sponsored posts or events on your wall so that you might like those posts or events and prefer to click on such posts or events. This is an example of data exploration. To explore insightful knowledge from data, we need to process it systematically. This is also known as a data processing pipeline.

Introduction

Machine learning is the use of intelligent algorithms to extract useful patterns from data. According to Tom Mitchell, “A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P , if its performance at tasks in T , as measured by P , improves with experience E ”.

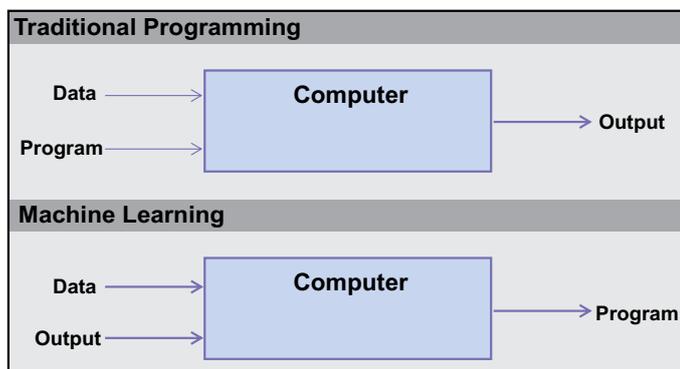


Figure 1: Machine Learning Vs Traditional Programming

Machine learning is different from traditional computer programming. In machine learning we do not write each and every rule as a program code but the computer will be able to figure out the needed rule or pattern by scanning input data as shown in Figure 1. Therefore, data is the essential raw material for any machine learning system. To prepare the data for machine learning algorithms, we need to process, explore and visualize such data as a part of data science. So, machine learning and data science are inter-connected like both sides of a coin.

How Machines Learn

Machine learning works in a pipeline of different activities as shown in Figure 2. It first needs data to be feed into the system where the data gets pre-processed. The preprocessing of data consists of removing noise and making it fit for appropriate formatting. This

process continues until the data gets ready for machine learning models. Machine learning engineers now use preprocessed data to design an appropriate machine learning model and implement as well as test it. After these activities, the machine learning model is deployed in real-time applications (RTA).

Opportunities in Machine Learning and Data Science

In the 6th Edition of the World Economic Forum (WEF) held in Switzerland last year, the term ‘Data Scientist’ was listed as the most demanding profession in the world. We can see how widespread and expanding this field is now. Why it has become so widespread is because many devices are now connected to the Internet *because of the Internet*. Each day, users are feeding some data or the other to the Internet. Like social media or search engines, data is reaching big software companies. These companies consider this data as *fuel*.

The demand for data scientists has increased in the market due to the availability of sufficient data for extracting information and getting useful output. The services of data scientists are especially used in digital marketing and commercial advertising. For example, data scientists can analyze image data through image processing. They can discern whether there is water on Mars or other planets, or whether there are other specified things. One such development is the latest visualized information on the ‘black hole’. This too is an extraordinary achievement of data science. The image of the black hole they have *created*, is not a real image captured by image acquisition tools but a computer-generated image after due processing of select data.

Banks too can greatly use data science. Today, nearly all important banks have digitized data. Computerized

The Machine Learning Process

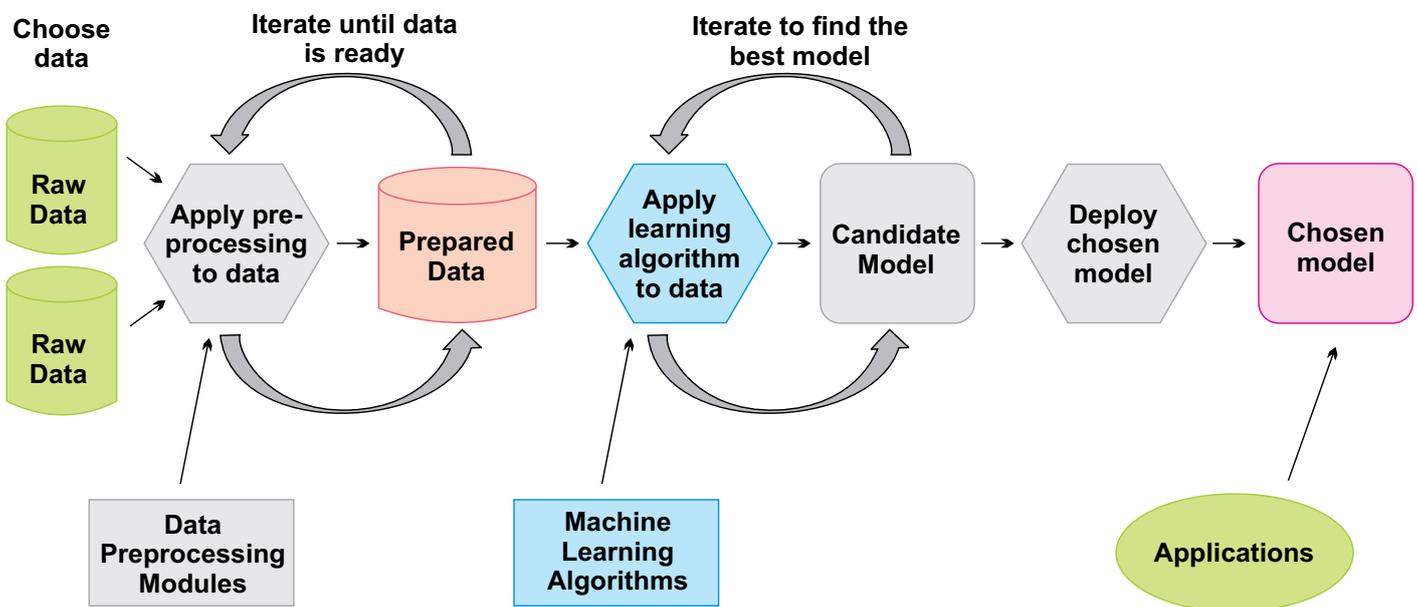


Figure 2: Machine Learning Process (<https://volcanohong.github.io>)

data is used by banks and financial institutions in order to launch new schemes through data analysis or through data synthesis to boost business. Data science seems to have become a routine process there.

Challenges in Machine Learning and Data Science in Nepal

The main challenge on how to start up machine learning and data science businesses in Nepal is the lack of experts in these fields. Our universities as yet have no specific courses dealing with these subjects individually but only as a part of full courses – BIM or BIT – comprising Computer Science & IT, Computer Engineering, or Information Technology. We first need to build the right environment for machine learning and data science in our country. For this, the like-minded – professionals, teachers, and educators – need to come together to work and share available opportunities with students.

Another challenge is the scarcity of computing resources. Most educational institutions do not have their own high-performance computers, and servers, which are essential components of big data analysis and data science. However, there is the availability of cloud computing where we can buy computing resources as per our requirements even though these resources may not be as reliable as those available through our own servers.

Conclusion & Recommendations

We have numerous opportunities being a developing country because there is much to be automatized in Nepal in almost every sector such as online ticketing in transportation, digital health in health services, e-governance in the offices of Nepal Government.

The government must establish a computing research center which can devise new technological applications or even the technology related to information technology, machine learning and data science.

We, as educators, should start designing new courses and developing new curricula to empower our students with the knowledge of data science and machine learning.

In future, the automation of these fields requires not only such inputs of modern information technology but also the use and development of artificial intelligence (AI) along with machine learning and data science.

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The Authors: Mr Tej B Shahi & Mr Surya B Basnet are the founder members of Machine Learning and Data Science Community Nepal (MLDSN). (www.mldsn.org)

Invasive Alien Ants

Indra Prasad Subedi

Ants are a vital component of our ecosystem. They impact everything from the quality of soil to human health, and are even considered as ecosystem engineers. However, the invasion of non-native species (alien ants) is a matter of huge concern for biologists. Invasive alien species (IAS) are those species which are established outside their natural distribution, past or present, and their introduction or spread threatens biological diversity. Alien species may become a major threat to indigenous fauna if they have invasive characters. IAS spread by natural process or human activities and show explosive population growth when invading, and soon become dominant species.

Ants seem to be rather efficient invaders because of their broad diets, nesting habits, ability to breed rapidly, and adaptability to varied habitats. Five species of ants come under the world's 100 worst invasive alien species. Invasive ants are a diverse group of aggressive, competitive ant species and may have destructive effects on native biodiversity, agriculture, and public health thus threatening agricultural, economic, environmental, and social well-being. While native ants can also cause damage to plantations, invasive ants produce nature conservation threats and cause severe economic loss.

The current list of invasive ants includes more than ten genera belonging to three subfamilies. They are not frequently encountered in undisturbed



continental habitats, but are found anywhere in tropical and sub-tropical areas posing a considerable threat to indigenous fauna. The most widespread ant species include the pharaoh's ant (*Monomorium pharaonis*), Argentine ant (*Linepithema humile*), crazy ant (*Paratrechina longicornis*), ghost ant (*Tapinoma melanocephalum*), big headed ant (*Pheidole megacephala*), red imported fire ant (*Solenopsis invicta*), Singapore ant (*Trichomyrmex destructor* formerly *Monomorium destructor*), and

Yellow crazy ant (*Anoplolepis gracilipes*). These are the top invaders on the basis of their recently updated world-wide distribution alongside their ecological and economic impact. Invasive ants exclude competing species from food resources and are known to attack heterospecific nests.

The general characteristics of invasive ant species are as follows:

- They're usually highly aggressive,
- superior as regards their competitive ability to other similar native species,
- (their) colonies are polygynous,
- usually unicolonial,
- (their) mating is intranidal,
- (their) colonies are mostly founded by budding, and
- swarming is generally lacking.

In agricultural and horticultural areas, invasive ants are capable of destroying crops, either directly by damaging fruit or indirectly by causing damage to agricultural crops as they foster sap-sucking insects such as aphids, scale insects, and mealy bugs which harm plants and spread diseases. For example, the Little fire ant (*Wasmannia auropunctata*) reduces yields by nurturing sap-sucking insects thereby encouraging plant diseases. Furthermore, harvesting becomes difficult for farm workers due to the ant's painful sting.

Invasive ants may disrupt ecological relationships either by directly attacking vulnerable wildlife or indirectly by killing the other species they rely on for food. They can also interrupt mutualism necessary for surviving. For instance, *Linepithema humile* displaces almost all other ant species where it occurs. The European fire ant, *Myrmica rubra*, is reported to help the spread of invasive plant species, and together they cause destruction of native ecosystems.

Some species are highly aggressive and can sting humans which may cause effects ranging from mild discomfort to life-threatening reactions. *Solenopsis invicta* may also be the cause of huge loss by damaging infrastructure, agriculture, and human health. Others could damage houses or buildings, electrical items (in particular), and plastic cables or pipes. An incredibly high presence of *Anoplolepis gracilipes* may create immense annoyance

due to these ants crawling on the human body, infesting homes, and constantly remaining in or around the food people eat. *Pheidole megacephala* and *Trichomyrmex destructor* are attracted to electric current entering electrical equipment and thus causing costly electrical damage every year.



The increasing amount of information available regarding invasive ant species suggests that invasive species in Nepal need more research. To exemplify, ants such as the *Trichomyrmex destructor* and *Paratrechina longicornis* are found in Nepal but the actual problems caused by them have not been fully studied.

Through genetic investigation, researchers have now come to know about the history of the invasion of the tropical fire ant (*Solenopsis geminata*). The first ant species is said to have travelled across the globe by sea. The exact causes of the evolution of invasiveness, nonetheless, are yet to be clearly known for many species. Global climate change may have a serious impact on the distribution of invasive ant species. In natural environments, some invasive ants form super colonies that can eliminate many native animal species and seriously disrupt ecological processes. The areas infested with invasive ants showed a reduction in the native ant diversity. However, the long-term effect of introduced ants is not well understood. The introduced ant species can serve as an excellent bioindicator for assessing the status of an ant community.

Management activities to minimize their damage include preventing entry, monitoring high-risk areas, removing new invaders, and dealing with existing incursions. New research has identified natural, plant-derived compounds like cinnamon repel fire ants, one of the world's most invasive insect species. The most effective method for preventing the invasion of these ants is to prevent them from arriving along with imported materials through strict inspection and thorough sanitation. Further, we also need to keep in mind the fact that the current US population of red imported fire ants which started with 9 to 20 imported individual queens now infests millions of acres across its Southern States. If any incursion does occur, it is very

hard to manage the problems that normally arise. It is essential, consequently, to think about the problems created by invasive ants well in time, and immediately take necessary action to prevent possible incursions. All this should be a wake-up call for closer monitoring of urban ecosystems to eliminate infestations before they become problematic.



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Determining Stock Price - NEPSE

Suvash Khanal

The role of the financial market is crucial in the mobilization of financial resources through financial intermediation. The financial market is a specialized market that is responsible for channeling financial resources from the surplus units (savers) to the deficit units (those who need additional funds) to carry out economic activities such as investment. Such investment is the real investment of an economy which adds value to the existing resources of the economy. In this regard, while the primary market has a greater role for providing funds for real investment, the secondary market provides the liquidity for primary market investors.

The NEPSE was established with the objective of conveying free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through members, investors, market intermediaries, such as brokers or market makers. Initially, it was established as the Securities Exchange Center Ltd, in 1976, which had consolidated functions of facilitating and promoting the growth of capital markets. Before its conversion into the regular stock exchange we know, it was the only institution for capital markets undertaking investment bankers' jobs such as brokering, underwriting, managing



Though financial investment opportunity in Nepal is limited due to the infant stage of the economy, the consciousness and interest of Nepalese investors in the stock market has been increasing over the decade. The number of applications filed by the general public for both the initial public offerings and further public offerings of joint stock companies during the past few years also shows an increasing interest of the Nepalese in the bourse.

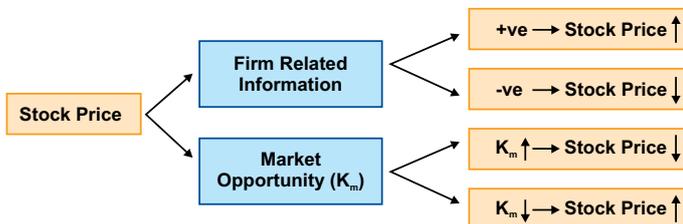
Nepal Stock Exchange (NEPSE) is only a formal stock exchange of Nepal established under the Company Act and operating under the Securities Exchange Act, 1983. It is a reliable barometer to measure the economic condition of the country. Every major change in our country and its economy is reflected in the prices of shares. The rise or fall in the NEPSE's indices indicates the boom or recession cycle of the economy. Therefore, the stock exchange is also known as *the pulse of an economy* or even an *economic mirror* reflecting the economic conditions of a country.

public issues, market making for government bonds and other financial services. Nepal Government, under a program initiated to reform the capital markets converted the Securities Exchange Center into NEPSE in 1993. However, NEPSE opened its trading floor *later* on 13th January 1994.

Furthermore, the Government of Nepal, Nepal Rastra Bank, Nepal Industrial Development Corporation and Members are the shareholders of NEPSE. The Members of NEPSE are permitted to act as intermediaries in the buying and selling of government bonds and listed corporate securities. At present, there are 50 member brokers and 2 market makers who operate on the trading floor as per the rules and byelaws of the Securities Exchange Act, 1983. Besides this, NEPSE has also granted membership to issue and sales managers and securities' traders (dealers). An issue and sales manager works as a manager for issues and as an underwriter for the public issue of securities whereas securities' traders work as individual portfolio managers (See *NEPSE Online*).

NEPSE lists various securities such as stock, bond and mutual fund unit of 221 Nepalese companies. It encourages people to invest in such companies' securities by regulating new issues, better trading practices and by educating public about their investment. The presence of NEPSE is an assurance to the Nepalese investors that their investment can be easily converted into cash. The variety of short- and long-term investment opportunities provided by NEPSE through quality financial intermediary services has enabled individuals to make reasonable and adequate decisions about the risks and rewards of investing their funds. The stocks of renowned companies are actively traded so such companies can easily raise fresh capital through further public offerings.

The valuation of securities is useful for investors, government and creditors. The investors can know the value of their investment, the creditors can value the creditworthiness and the Government can impose taxes on the value of securities. The stock market helps to value the securities on the basis of demand and supply factors. Regarding this, the stock price in NEPSE, its indices and movements has always been a matter of discussion among stakeholders such as general public, media, policy makers, regulators, bankers and investors. Therefore, it is an interesting topic to discuss the stock price determination in the NEPSE.



Theoretically, the price of any financial asset is drawn as the present value of the expected cash flow that shall be generated by the asset in the future course of action. But in reality it is nearly hard and requires much expertise and consideration in order to draw the exact future cash flow of any asset such as a common stock. Practically, the price of a stock is drawn by the stock market on the basis of the demand and supply function of particular assets. Moreover, the pricing function of any investment opportunity is strictly based on available information regarding the risk and return. Briefly, from the Figure above, the stock price of a particular stock is determined by the available firm-related information of the stock compared to the market opportunity. The listed companies' periodic financial and other vital information such as profitability, risk-taking of firm, growth and expansion, and board or executive decisions and activities are discriminated through a formal medium regularly in NEPSE. The positive information of a particular firm regarding future earnings and growth contributes to an increase in the stock price whereas negative information impacts negatively on the stock

price. Therefore, there is a direct relationship between the firm-related information and the stock price in the market.

Unlike this, market opportunity is indirectly related to the direction of the stock price. The market opportunity refers to the market interest rate which is determined by the availability of the liquidity or investable funds with the various actors such as bankers, investors and individual savers of an economy. If the supply of investable funds is low in the market, it will increase the market interest rate on the one hand and decrease the overall demand pressure in the stock market on the other hand: Hence, this will reduce the stock price along with market indices. Similarly, if the supply of the investable funds is sufficient, the overall demand pressure in the stock market will be increased resulting in the increase of stock prices along with market indices though there may not be any further firm-related information available to the market.

NEPSE operates on the 'NEPSE Automated Trading System (NATS)', a fully screen-based automated trading system which adopts the principle of an order driven market. Purchase and sale of physical as well as dematerialized securities is done through NATS. The trading system is an open auction trading system where the ordered prices from both stock buyers and sellers are entered in the NATS through respective broker accounts. Any matching is executed and further deals are settled by the brokers on the behalf of their clients. The last matching is displayed on screens as current prices of the stock. The top 5 buying and selling orders can be seen in the market depth section of the online system of NEPSE. Besides that, the initial order price can be set between 5% deviation of the previous price in either direction, and further orders can be deviated below 10% deviation. The new information available for a respective firm only influences the firm's stock price whereas the news related to any possible changes in macroeconomic factors influences the whole stock market and NEPSE indices.

Though statutory requirements have ensured the dissemination of vital information that affects the stock price for each listed company, it is not always an equitable exchange of information for all investors. The discrepancy towards the access of such information is called *information asymmetry* which always creates problems for general investors who rely strictly on formal sources whereas it also creates an opportunity for inside traders and speculators. Therefore, the pricing game is not entirely fair in some cases, and one should be always aware about price hikes and the speculation done by various influencer groups in NEPSE.

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Student Corner

Fondness for Writing

Writing! It's a first thing for reporting every single instant when I'm sad, mad, happy, excited, lost, gloomy. Optimist, and at times, a pessimist that I am. Whenever, I try to psychoanalyze myself, I find writing as my best part. It makes me a complete person, I guess.

It's really quite hard to feel your pain because words, the dark ink stabs on paper, the marks that the world perceives so concernedly, are in reality, a mixture of all those ecstasies and gloomy times that your mind had to pass through. All those exuberant words and considerations playing in bewilderment in a small part of yourself, namely the brain.

At some point, you take notice of a showy world, and the very next moment, your restless ruminations become fantasies with a strong sense of *deja vu*.

You ponder about the times when you felt everything in your circle was perfectly fine, vibrant, and optimistic. Then your mood swings take you to a dark corner where you feel nothing's going right, and you desperately long to press the backspace button of your memory. It's hard enough to let you move ahead towards what future has store in for you without lingering on your past!

Despite all these perplexities, your mind does not rest. It keeps craving for better ways to spill out what it contains on the clean sheet of paper you started writing on before. When you do start writing, you are amazed because you cannot realize how time flew while you're working on your complex reckoning. However, you are at last able to give an ultimate image of whatever was going on in your psyche in those moments, and able to deliver all that because of your writing. Letting out all your emotions in a tangible way is related to love or hatred or a bit of both in exceptional cases.

Your love for writing ultimately wins over all the dilemmas you had come across, and you're now finally ready with your refined pieces of art which the majority mistakes as a servile word forcefully penned down in search of more ears. Yet the true writer in you is not startled by all those meaningless perspectives, because your key to success is safe with you which reacts, 'I pen for the sake of my own pleasure, and writing more and more is like drowning in endless imagination'. This is what boosts my confidence and improves my writing. And for all those pessimists or critics out there, what I have written down is what I have created but you may laugh at what you may have missed in my words.

Kriti Poudel - Grade XI Science

Marks and Intelligence

It is, with no doubt, a fact that the modern world treats education with uttermost seriousness. We are compelled to go to school from the moment we have the dexterity to do so. This has, inevitably, created a dogma that academic success is what defines a person's intelligence. A person is led to believe, although not explicitly, that there's simply nothing left to live if the grades go wrong.

We seem to be narrowly fixated on ways to deliver the best education to a child and overlook how he should be educated. The education system seems overwhelmingly focused on 'what to learn'; not 'how to learn'. However, the measure of intelligence that is solely equated with memory limits what a young person can offer. The subjects in the timetable and their distribution across the week in no way reflect what happens in real life. Humans blithely educate themselves as if the possession of arithmetic skills (as an example) is what's going to assist us during the innumerable challenges that life offers. We get so determined to get good grades that we remain ignorant about how the world actually works and our formulas will never come to us while dealing with the sorrows of our careers, the tensions of families and the struggle of relationships. It seems obvious that intelligence is not just about problem-solving, reading and writing. Social and emotional intelligence is what we apparently lack. Our definition of intelligence, surrounded by good grades, proves to be fallacious.

Whilst getting praised for academic success, we often struggle with people, and we are despised by many ending up in toxic relationships and come to the startling realization that we still haven't truly figured 'it' out. Turning over the thought of what we should have learnt, we often assume that it might simply be impossible to teach ourselves the sort of social and emotional skills whose absence we pay such a heavy price for or even that it is just too late. Some of what we have to suffer in life is unavoidable; those struggles are what give life its sordid meaning. Nonetheless, it isn't a must for every new generation to collide afresh with the problems that have, in theory, already been worked out, if not created, by their predecessors.

In the world of the Internet – with numerous websites and educational films – there isn't any reason to wait for so long to discover lessons that could make a big difference and prove to be what shapes a person's character. The focus on those laws of motion is an insane excuse for not learning the 'laws' of love and kindness, or the principles of emotional stability – what we, ostensibly, lack the most. It's in this context that emotional intelligence, which doesn't necessarily depend on education, seems crucial. It is not inherent but can be cultivated with time and effort.

Obtaining intelligence may be impossible but it is not so to promote it and to develop each student as intellectually capable. One requirement for it, and also one of the many things schools lack in this area, is student assessment and focus on a student as an individual, rather than a small, probably expendable, part of a whole classroom. Since there are multiple forms of intelligence, individually assessing a student in various fields like art or creativity can help bring into light their area of interest and the sector in which they are most likely to develop mentally. Asserting that grades don't matter at all would be an asinine remark; students must not stop studying. However, the task of any school must stretch far beyond the agreed curriculum (which in the context of Nepal isn't revised and updated making the knowledge of students outdated).

Although the purpose of examinations is, in a sense, to make students work hard, it is more important to encourage them to be well-rounded and to seek not just good grades but also the qualities of being a better and complete person. After all, marks, in the end, do not define a person or his intelligence. One cannot just throw a certificate at the face of a difficult or unnerving situation and hope that everything goes well. It is his mental, emotional and social capability, his intelligence to properly weed out negative remarks before acting on a situation, that define him. Marks possess some importance, but it should not to the extent where the examinee feels worthless and incapable in life, just because he secured a low mark in a particular subject.

Safala Bista, Kripa Acharya, Pratik Devkota, Sandesh Gyawali & Sumargi Thapa - Grade XI Science

KIST FAIR 2015

Fostering Talent
SCIENCE • IT • MANAGEMENT
 22 Mangsir 2075, Kathmandu

Youthful Creativity

We welcome one and all to our well-regarded, eye-opening *Interschool Art & Craft Competition* at KIST College, Kathmandu, on Saturday, December 7, 2019!

Our purpose has been to encourage very young artists to find a platform downtown to put on show their talent through diverse artistic exhibits. Pupils from an array of schools – private, governmental, or charitable – across the Valley take part. Recognition aplenty!

Fascinatingly engaging, this inter-institutional annual event, veritably a cornucopia of creative endeavor, is invariably a glorious experience for all of us.



As customary, the annual KIST Fair 2075 – a wonderful flurry of activities – held on 22 Mangsir was a treasured event attended by the best in the educational field.

Significantly, the *Inter-College SciTech Competition and Interschool Art & Craft Competition* had keen participants from Kathmandu's finest colleges and schools. Notably, the *Imagineering Competition* was a resounding success with all the pragmatic creativity exhibited.

Forever widening our innovative outreach, we included numerous new items such as *Inter-College Robotics Competition, KIST Datathon Competition, KIST FIFA Competition, and KIST Counter-Strike Competition* for the delight of all who visit this grand edu-oriented occasion.

Likewise, this Fair – incorporating the soft-power of blended learning – on Saturday, December 7, 2019, should prove to be another special entertainment gala & learning bonanza for youngsters & budding professionals with scholastic zest, innovative skills, and intellectual curiosity tempered with a just balance of ethics and rationality in their approach to Life now and the Future.

Welcome All Who Wish to Come!



Events

- Inter-College Science & Technology Competition
- Inter-College Art & Craft Competition
- Intra-College Science & Technology Competition
- Intra-College IT Project Competition
- Intra-College Management Project Competition
- Intra-College Imagineering Competition
- KIST Datathon Competition
- KIST FIFA Competition



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