MAY-JUNE EDITION

THE "BYTE"

DEPARTMENT OF COMPUTER SCIENCE & ENGG

IMS ENGINEERING COLLEGE

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Vision/Mission of Institution/Department

Institution Vision:
Our vision is to impart vibrant, innovative and global education to make IMS the world leader in terms of excellence of education, research and to serve the nation in the 21st century.

Institute Mission:
To develop IMSEC as a centre of Excellence in Technical and Management education.
To inculcate in its students, the qualities of Leadership, Professionalism, Executive competence and corporate understanding.
To imbibe and enhance Human Values, Ethics and Morals in our students.
To transform students into Globally Competitive professionals.

Department Vision:
To be recognized as a Centre of Excellence imparting quality education and creating new opportunities for students to meet the challenges of techno- logical development in Computer Science & Engineering.

Department Mission:
To promote technical proficiency by adopting effective teaching learning processes.
To provide environment & opportunity for students to bring out their inherent
talents for all round development.
To promote latest technologies in Computer Science & Engineering and across disciplines in order to serve the needs of Industry, Government, Society and the scientific community.
To educate students to be Successful, Ethical and Effective problem-solvers and
Life-Long learners who will contribute positively to the society.

Program Educational Objectives

- Graduates of the program will be able to apply fundamental principles of mathematics, engineering, management, basic programming languages in problem understanding & formulating its solutions. They will be aware of the role of computing in multiple disciplines.

- Graduates will learn to apply the principles of advanced computer programming & approaches, software engineering, project management, emerging techniques & tools while developing real world computational solutions and projects. Graduates should also learn to collaborate & ap- ply innovative aspects in problem solving.

- Graduates will enhance their technical, aptitude, communication & professional skills through value addition programs, project based learning, engineering events, self-learning, research, interaction with industry & alumni. Help our graduates to establish a productive Computer Science and Engineering career in Industry, Government or Academia.

- To promote the understanding of professionalism, ethics, social responsibilities among graduates. They will contribute to the society through ac- tive engagement with professional societies, schools, civic organizations or other community activities. To promote professional capabilities through lifelong learning.

Program Specific Outcomes

- Student should learn to demonstrate the basic understanding of Computer Science & Engineering fundamentals, programming, and professional/ social ethics and apply mathematical foundations to design & solve computational problems.

- Student should learn to apply analysis, design, development, testing & management principles in the development of computational solutions & software systems; He/she is expected to function effectively in development teams.

- Student is expected to gain enough value addition and technical expertise on latest industry specific skills through self learning & training. They are expected to have good communication skills with correct attitude and aptitude.

- Students are expected to inspire for lifelong learning & do well in their professional careers. They are also expected to act as a good citizen by in cultivating in them moral values & ethics.

FROM EDITORIAL DESK

It is with immense happiness that we place in the hands of our readers this edition of 'THE BYTE'. This magazine is a platform that exhibits the literary skills, innovative ideas of teachers and students.

It was crazy when we stated it but when it all come together, we were more than happy.

We express our considerable appreciation to all the authors of the articles in this magazine. These contributions have required a generous amount of time and effort. It is this willingness to share knowledge, concerns and special insights with fellow beings that has made this magazine possible.

We hope you enjoy reading these articles, as seen through the IMS student's journalistic eye.

Thank you all!!

CONTENTS

ARTICLES

Get ready to fall in love with </Python>

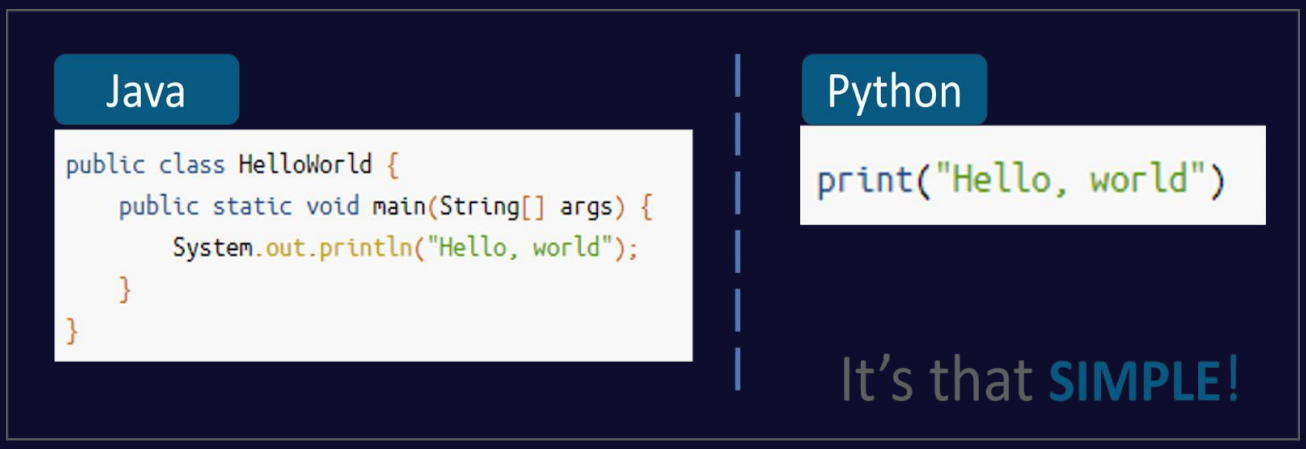
Programming languages have been around for ages, and every decade sees the launch of a new language sweeping developers off their feet. Python is considered as one of the most popular and in-demand programming language. A recent Stack Overflow survey showed that Python has taken over languages such as Java, C, C++ and has made its way to the top.
Here are top 10 reasons to learn python:

1. Simple & Easy To Learn

Python is extremely simple and easy to learn. It is a very powerful language and it closely resembles the English language!
So, what contributes to its simplicity? Python is

- Free & open source
- High-level
- Interpreted
- Blessed with large community

Furthermore, in Python, you don't have to deal with complex syntax, you can refer to the below image:



If you have to print 'hello world', you have to write above three lines whereas in Python, just one line is sufficient to print "hello world". It's that SIMPLE guys!

2. Portable & Extensible

The portable and extensible properties of Python allow you to perform cross-language operations seamlessly. Python is supported by most platforms present in the industry today ranging from Windows to Linux to Macintosh, Solaris, Play station, among others.

Python's extensibility features allow you to integrate Java as well as .NET components. You can also invoke C and C++ libraries.

3. Web Development

Python has an array of frameworks for developing websites. The popular frameworks are Django, Flask, Pylons etc. Since these frameworks are written in Python, its the core reason which makes the code a lot faster and stable. You can also perform web scraping where you can fetch details from any other websites. You will also be impressed as many websites such as Instagram, bit bucket, Pinterest are build on these frameworks only.

4. Artificial Intelligence

AI is the next huge development in the tech world. You can actually make a machine mimic the human brain which has the power to think, analyze and make decisions.
Furthermore, libraries such as *Keras* and *TensorFlow* bring machine learning functionality into the mix. It gives the ability to learn without being explicitly programmed. Also, we have libraries such as *openCv* that helps computer vision or image recognition.

5. Computer Graphics

Python is largely used in small, large, online or offline projects. It is used to build GUI and desktop applications. It uses '*Tkinter*' library to provide fast & easy way to create applications.

It is also used in game development where you can write the logic of using a module '*pygame'* which also runs on android devices.

6. Testing Framework

Python is great for validating ideas or products for established companies. Python has many built-in testing frameworks that covers debugging & fastest workflows. There are a lot of tools and modules to make things easier such as *Selenium* and *Splinter*.
It supports testing with cross-platform & cross-browser with frameworks such as *PyTest* and *Robot* Framework. Testing is a tedious task and Python is the booster for it, so every tester should definitely go for it!

7. Big Data

Python handles a lot of hassles of data. It supports parallel computing where you can use Python for *Hadoop* as well. In Python, you have a library called "*Pydoop"* and you can write a *MapReduce* program in Python and process data present in the HDFS cluster.

There are other libraries such as '*Dask*' and '*Pyspark*' for big data processing.Therefore, Python is widely used for Big Data where you can easily process it!

8. Scripting & Automation

People only know that Python is a programming language, but Python can also be used as Scripting language. In scripting:

- The code is written in the form of scripts and get executed

- Machine reads and interprets the code
- Error checking is done during Runtime

Once the code is checked, it can be used several times. So by automation, you can automate certain tasks in a program.

9. Data Science

Python is the leading language of many data scientist. For *years,* academic scholars and private researchers were using the MATLAB language for scientific research but it all started to change with the release of Python numerical engines such as '*Numpy'* and '*Pandas'*.

Python also deals with the tabular, matrix as well as statistical data and it even visualizes it with popular libraries such as '*Matplotlib'* and '*Seaborn*'.

10. Python's Popularity & High Salary

Python engineers have some of the highest salaries in the industry. The average Python Developer salary in the United States is approximately ***$116,028 per year***. Also, Python has a strong spike in popularity over the last 1year. Refer the below screenshot taken from Google Trends.

Radhika Sharma, CSE-2, 3rd Year

Ethical Hacking VS Non-ethical Hacking

Hacking means to play around in such a creative way with any kind of technology, that you create something unexpected, something new.

It is often reduced to breaking into systems, yes, that's hacking too, but hacking is much bigger than that. Hacking is to play on technology as an art form, to make technology the instrument of an artist, where you create something beyond pure engineering, something that can count as art for the skillful to watch.

I do feel like that, when I study an artful and thoughtful piece of code. Or if I see a cool hack, that breaks the limits of the things we thought were possible with a technology. It is also, if you exploit some side effects into something that was thought to be impossible.

It can also mean, that you can hack a person or an organisation structure, that you can hack your garden or bees, that you can hack your school with all the teachers and structures and everything or your company.

It doesn't mean that you have to break any laws for that.

But if you do something for just your own advantage and you do not think about the consequences for others. If you take some small bit of fun but cause harm to others, then it is unethical.

Unethical hacking can be lawful or unlawful. Law has nothing to do with ethics. There have been societies and structures in societies that were lawful evil. To break the law in such societies is ethical, but unlawful. So you can get into jail or end up dead, still you have been an ethical hacker.

The point about good and evil is, that those words have a little fuzzy religious meaning, which is why we use the word unethical.

- **The white hat**

  Who is obeying he law and helping people, he is creative and a well doer for society. Dennis Ritchie was a classical white hat. But most system administrators that are securing their systems against intrusion are white hats. They are the paladins of the hacker community. In the words of Dungeons and Dragons they are lawful good.

- **The grey hat**

  He is not always obeying the law, if the law is in the way of doing something right. You might call them Robin Hoods or something, they do no harm. But they are willing to break a law, when the law is an evil law. This kind of hacker might land in jail. But mostly they do not or if they land in jail it's a tragical situation in a fight against a lawful evil society. Some of the resistance fighters of the Second World War were like this, like Sophie Scholl and The White Rose. You come very fast into the grey area, if you work on something serious. In the words of Dungeons and Dragons this would be chaotic good, sometime chaotic neutral, if they are just kids having fun. But those who wreck havoc on other people just for the lulz are in danger to fall into the last category. Sometimes a prank goes too far.

- **The black hat**

  If you start to exploit technology for your own gain and you do not care too much or in any way about the lives and the possessions of others, you become a black hat. That's the bad guys, that's either chaotic evil, when you are just a criminal that is stealing, extorting, and burning systems down for your own profit or just out of sadism or the feeling of being superior.

  But you can also become a blackhat if you are lawful evil.

That’s the bad guy, that we all are fighting and that we hope to see in jail and if he gets killed in the process to stop him, nobody but his mother will shed a tear at his grave. And even his mother might refuse to come. If he ever gets a grave.

They might be protected by the law, if the law is evil, so they might be lawful evil, like the copyright infringement lawyers, that go after the pocket money of a sixteen year old, because he has a illegal download of Harry Potter. Those kind of lawyers obey the law, they are hacking the law for their own profit but they shit on what that means to anyone but themselves. I always find the lawful evil to worst kind of vermin out there. Those who attack the networks and the social and economic infrastructure of the world for “a greater good” in the ranks of unscrupulous military units, those that kill civilians like in the case of the village Mỹ Lai, the global attack on systems through the Stuxnet worm, the global spying on everyone through Prism and Tempora, that’s all lawful evil. They might say it is all for a greater good, but it is evil, because they shit on what they call on “collateral damage” doing their thing.

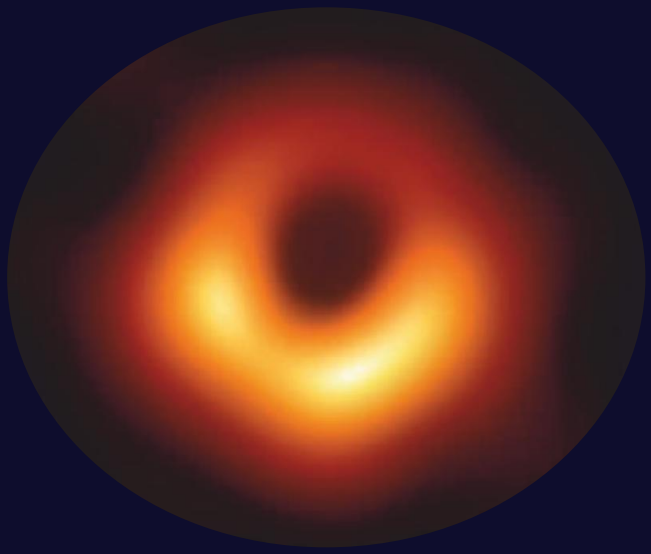
Because they can. Every bad dictatorship on this world is lawful evil and to work for them is evil and you will become a blackhat. You become a blackhat if you help criminals to do their thing, too. Even if you do good and you protect the things that you value, it might make even one who is thinking he is a whitehat a blackhat.

The world is a bit more complicated than that. But if you are thinking about what you are doing and what you are programming, what your code does or does not or can be misused to do or not, you are on a good way to become ethical. Sometimes to do a bad thing is good. Many of the grey hats are good people. You might even not be able to become a very good white hat without ever tried some illegal things.

SUPRATEEK HALSANA

CS-3 (3rd year)

The “Black Hole” Wow Factor



WOW. That was what Katie Bouman’s face said, in an image widely shared on social media, as she saw what she and her colleagues had made: the first picture of a black hole .If anyone wonders if science has anything to offer, or is for them, take a look at the joy, disbelief and pride shown by the diverse, global team of scientists who made it happen. Yes, it does, and yes, it is. Sometimes on an untrodden path, you need time to find the way. New Scientist reported on the first attempts to snap a black hole almost exactly 10 years ago, and we have checked in regularly since. In our special issue of 10 October 2015 celebrating 100 years of Albert Einstein’s general theory of relativity, Heino Falcke, one of the Event Horizon Telescope’s prime movers, said he hoped the breakthrough would come within a decade.

Congratulations to the entire Event Horizon Telescope team –you got there. What a rich story lies behind the project. Let’s put it out there: there is no more fascinating, incomprehensible, majestic conception of a human mind than a black hole. Rips in the fabric of the universe, these points of infinite density and curvature suck in anything that comes too near. Even Einstein baulked at accepting this consequence of his theory. We have spent the past few decades coming to terms with the fact that they – or something very like them – are real. Now we can see them, perhaps we can begin to get to grips with what they are. Directly imaging a black hole is the beginning of a story, not the end. What happens inside one?

Following the paths you might take were you to be sucked in, as Chelsea Whyte does on page 30,is a delightful (if distinctly uncomfortable) conceit – but the variety of scenarios she sketch lays bare how little we know. The truth is, black holes are a huge triumph and an even bigger challenge for current theories of physics. Events at their event horizons expose a yawning gap between general relativity and the other great load-bearing wall of modern physics, quantum theory.

The mathematical "singularity "of infinite density and space-time curvature that supposedly lies at the hearts of black holes is an admission of defeat in a universe ill set up to accommodate real, physical infinities. For all the light that Einstein's theories shed on the cosmos, they also cast a shadow we must be prepared to jump over. In what is fast becoming routine, the past week also saw the detection of two more gravitational waves, bringing the total number of these ripples in space-time we have seen to 13. But for general relativity to fully add up, the overwhelming weight of stuff in the universe must come in forms we have yet to see and struggle even to characterize: dark matter and dark energy. That conundrum is forcing modern physics to breaking point (see page 44).Better answers will require even better observations, and perhaps theories that bridge the quantum relativity divide – the great, unresolved quest of fundamental physics. Those who wish to follow Bouman's footsteps won't lack problems to work on. Just: wow. How far we have come. How far we still have to go.

Your black hole questions answered

DON'T BLACK HOLES SUCK EVERYTHING IN, INCLUDINGLIGHT? HOW CAN WE SEE ONE?

The picture is of the black hole's silhouette against the bright material circling it. Nothing we can see is coming out of the black hole.

WHY IS THE IMAGE BRIGHTERON ONE SIDE?

The black hole is rotating. The light coming towards us appears brighter and that moving away seems dimmer.

WHERE IS THE EVENT HORIZON?

The event horizon, from beyond which even light cannot escape, is in the central black area – the shadow of the black hole against the material circling it, and eventually falling in.

HOW BIG IS THE BLACK HOLE?

It is about 7 billion times the mass of the sun, and about 100 billion kilometres wide. This is about 22times the average distance between Neptune and the sun, so it would easily swallow the solar system.

DOES EVERY SPIRAL GALAXYHAVE ONE AT ITS CENTRE?

We think that pretty much all galaxies have supermassive black holes at their centres. They may be important for the formation of big galaxies.

WEREN'T TINY BLACK HOLESMADE HERE ON EARTH WITHTHE LARGE HADRON COLLIDER?

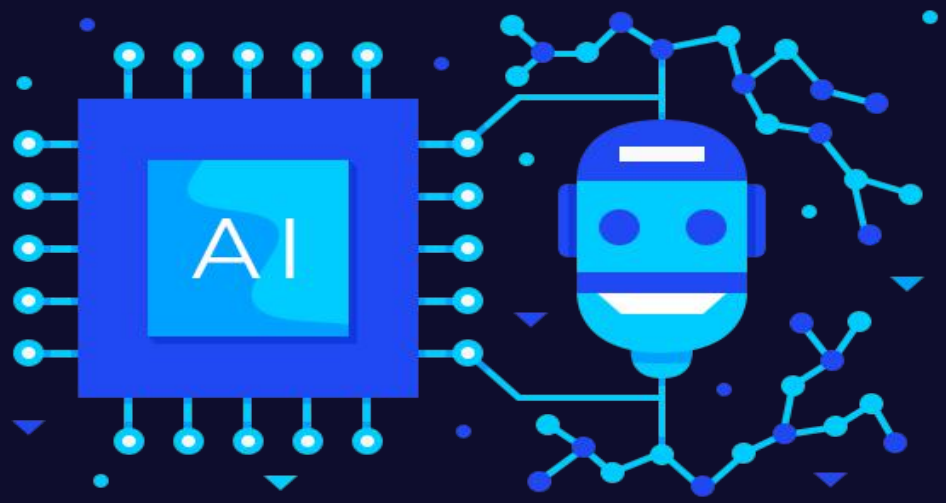
No. Some people were concerned the particle accelerator would generate mini black holes, but it didn't. It would require much more energy than the collider can produce to do that.

HAVE WE PROVEN HAWKINGRADIATION OR IS IT JUST A THEORY?

Hawking radiation is meant tobe released by a black hole as it evaporates. It is very difficult to prove experimentally or observationally, and has never been observed. For now, it is still a purely theoretical quantum effect.

Mukhar Bajpai, CSE-3rd year

What Is
Artificial Intelligence?



Computers can be programmed to make intelligent decisions. Does that make a computer intelligent?

Computers can be programmed to make decisions. Does that make the computer intelligent? What exactly is an intelligent decision? Is it a decision based on data gathered from personal experience and the experiences of others? Does an intelligent decision include doing things to reduce negative outcomes?

Imagine you touch a stove and it's hot and your hand burns. Two days later, you are in front of another stove. Would you touch the stove without thinking? Or would you remember how you burned your hand and try to figure out if the stove is hot before you touch it?

Not touching the stove the second time is an example of intelligence, the ability to gain and apply knowledge and skills. Remembering your hand was burned the first time is not intelligence. Intelligence is the ability to take your memory then do something based on the details of the memory.

It also turns out intelligence has different definitions and ways to decide who or what is intelligent. There's emotional intelligence, the ability to connect with people and read their emotions.

Computers are great at some things but not others. So it's no surprise building computers that are intelligent is complicated. Scientists and programmers are busy trying to make computers have artificial intelligence, the ability to gain and apply knowledge and skills. Artificial intelligence also is called AI. The term was coined in 1955 by John McCarthy, a computer scientist working on the problem of making computers intelligent.

If a computer is intelligent, however, is it really artificial intelligence? Or is intelligence a more accurate word to use? We don't say, "Jane has great human intelligence." We say, instead, "Jane has great intelligence. She's smart." Maybe intelligent computers are simply intelligent the way people are intelligent as a result of parenting, school, and life experiences. Some day the term artificial intelligence may disappear when computers become more like human beings, capable of more independent thought.

You might have heard of Watson, the IBM computer that can answer questions in the style of the Jeopardy quiz show. Watson is capable of responding to questions posed naturally (also known as natural language) by processing massive amounts of structured and unstructured data. The question and answer format, however, limits its intelligence to the data Watson consumes.

To teach computers how to be intelligent, researchers train them to play and beat old video games. Games provide a limited universe with a set of rules. Computers play the games and use trial and error to figure out different ways to win, the same way we do when playing these games. They use memory to build on successes and learn from mistakes.

How AI Is Used?

A more direct example of computers processing data and gaining intelligence through experience are Fanuc industrial robots. These robots share data as they all learn how to sort parts in bins. Each robot snaps a picture of a bin, analyzes the photo for clues that match what its programming code tells it to pick up, then picks up what the robot thinks is the correct part.

Is Artificial Intelligence Good or Bad?

As with any new technology, whether or not artificial intelligence software will be good or bad for humanity is an open question. Definitely AI software will put people out of jobs. And it is equally certain AI will create jobs, for example, programming and fixing robots.

It is possible software and machines with artificial intelligence also will treat people unfairly and kill people. This is already a reality. In the world before software and intelligent computers, people acted unfairly and worse towards people, willfully and based on lack of information or misinformation.

Perhaps the more interesting question is how humans will set limits for intelligent computers and how those limits will be enforced

Getting started with Deep Learning in R

Using

Keras & TensorFlow

Introduction

It has always been a debatable topic to choose between R and Python. The Machine Learning world has been divided over the preference of one language over the other. But with the explosion of Deep Learning, the balance shifted towards Python as it had an enormous list of Deep Learning libraries and frameworks which R lacked.

With launch of Keras in R, this fight is back at the center. Python was slowly becoming the de-facto language for Deep Learning models. But with the release of Keras library in R with tensorflow (CPU and GPU compatibility) at the backend as of now, it is likely that R will again fight Python for the podium even in the Deep Learning space.

1. Installation of Keras with tensorflow at the backend.

The steps to install Keras in RStudio is very simple. Just follow the below steps and you would be good to make your first Neural Network Model in R.

```
install.packages("devtools")
devtools::install_github("rstudio/keras")
```

The above step will load the keras library from the GitHub repository. Now it is time to load keras into R and install tensorflow.

```
library(keras)
```

By default RStudio loads the CPU version of tensorflow. Use the below command to download the CPU version of tensorflow.

```
install_tensorflow()
```

To install the tensorflow version with GPU support for a single user/desktop system, use the below command.
install_tensorflow(gpu=TRUE)

For multi-user installation, refer this installation guide.
Now that we have keras and tensorflow installed inside RStudio, let us start and build our first neural network in R to solve the MNIST dataset.

2. Different types of models that can be built in R using keras

Below is the list of models that can be built in R using Keras.
1.Multi-Layer Perceptrons
2.Convoluted Neural Networks
3.Recurrent Neural Networks
4.Skip-Gram Models
5.Use pre-trained models like VGG16, RESNET etc.
6.Fine-tune the pre-trained models.
Let us start with building a very simple MLP model using just a single hidden layer to try and classify handwritten digits.

3. Classifying MNIST handwritten digits using an MLP in R

```
#loading keras library
library(keras)
#loading the keras inbuilt mnist dataset
data<-dataset_mnist()
#separating train and test file
train_x<-data$train$x
train_y<-data$train$y
test_x<-data$test$x
test_y<-data$test$y
rm(data)
# converting a 2D array into a 1D array for feeding into the MLP and normalising the matrix
train_x <- array(train_x, dim = c(dim(train_x)[1], prod(dim(train_x)[-1]))) / 255
test_x <- array(test_x, dim = c(dim(test_x)[1], prod(dim(test_x)[-1]))) / 255
```

```
#converting the target variable to once hot encoded vectors using keras inbuilt function
train_y<-to_categorical(train_y,10)
test_y<-to_categorical(test_y,10)
#defining a keras sequential model
model <- keras_model_sequential()
#defining the model with 1 input layer[784 neurons], 1 hidden layer[784 neurons] with dropout rate 0.4 and 1 output layer[10 neurons]
#i.e number of digits from 0 to 9
model %>%
layer_dense(units = 784, input_shape = 784) %>%
layer_dropout(rate=0.4)%>%
layer_activation(activation = 'relu') %>%
layer_dense(units = 10) %>%
layer_activation(activation = 'softmax')
#compiling the defined model with metric = accuracy and optimiser as adam.
model %>% compile(
loss = 'categorical_crossentropy',
optimizer = 'adam',
metrics = c('accuracy')
)
#fitting the model on the training dataset
model %>% fit(train_x, train_y, epochs = 100, batch_size = 128)
#Evaluating model on the cross validation dataset
loss_and_metrics <- model %>% evaluate(test_x, test_y, batch_size = 128)
```

The above code had a training accuracy of 99.14 and validation accuracy of 96.89. The code ran on my i5 processor and took around 13.5s for a single epoch whereas, on a TITANx GPU, the validation accuracy was 98.44 with an average epoch taking 2s.

4. MLP using keras – R vs Python

For the sake of comparison, I implemented the above MNIST problem in Python too. There should not be any difference since keras in R

creates a conda instance and runs keras in it. But still, you can find the equivalent python code below.

```
#importing the required libraries for the MLP model
import keras
from keras.models import Sequential
import numpy as np
#loading the MNIST dataset from keras
from keras.datasets import mnist
(x_train, y_train), (x_test, y_test) = mnist.load_data()
#reshaping the x_train, y_train, x_test and y_test to conform to MLP input and output dimensions
x_train=np.reshape(x_train,(x_train.shape[0],-1))/255
x_test=np.reshape(x_test,(x_test.shape[0],-1))/255
import pandas as pd
y_train=pd.get_dummies(y_train)
y_test=pd.get_dummies(y_test)
#performing one-hot encoding on target variables for train and test
y_train=np.array(y_train)
y_test=np.array(y_test)
#defining model with one input layer[784 neurons], 1 hidden layer[784 neurons] with dropout rate 0.4 and 1 output layer [10 #neurons]
model=Sequential()
from keras.layers import Dense
model.add(Dense(784, input_dim=784, activation='relu'))
keras.layers.core.Dropout(rate=0.4)
model.add(Dense(10,input_dim=784,activation='softmax'))
# compiling model using adam optimiser and accuracy as metric
model.compile(loss='categorical_crossentropy', optimizer="adam", metrics=['accuracy'])
# fitting model and performing validation
model.fit(x_train,y_train,epochs=50,batch_size=128,validation_data=(x_test,y_test))
```

The above model achieved a validation accuracy of 98.42 on the same GPU. So, as we guessed initially, the results are the same.

Mr. Anurag Gupta
Assistant Professor, CSE Department


LITERARY

DON'T FIND FAULT

Pray, don't find fault with the man who limps
Or stumbles along the road
Unless you have worn the shoes he wears
Or struggled beneath the load

There may be tacks in his shoes that hurt
Though hidden away from view
For the burden he bears placed upon your back
Might cause you to stumble too

Don't be harsh with the man who sins
Or pelt with words or stones
Unless you are sure, yes doubly sure

That you have no sins of your own
For you know perhaps that the tempter's voice
Should whisper soft to you

As it did to him when he went astray
And would cause you to stagger too
Don't sneer at the man who's down today
Unless you have felt the blow

That caused his fall, or felt the shame
That only the fallen know
You may be strong, but still the blows
That were his, if dealt to you

In the self same way, at the self same time
Might cause you to stagger too

FOOTPRINTS IN THE SAND

One night a man had a dream. He dreamed he was walking along the beach with the Lord. Across the sky flashed scenes from his life. For each scene, he noticed two sets of footprints in the sand: one belonging to him, and the other to the Lord.

When the last scene of his life flashed before him, he looked back at the footprints in the sand. He noticed that many times along the path of this life there was only one set of footprints. He also noticed that it happened at the very lowest and saddest times in his life.

This really bothered him and he questioned the Lord about it, "Lord, you said that once I decided to follow you, you'd walk with me all the way. But I noticed that during the most troublesome times in my life there is only one set of footprints. I don't understand why when I needed you most you would leave me."

The Lord replied, "My precious, precious child, I love you and I would never leave you. During your times of trial and suffering, when you see only one set of footprints, it was then that I carried you."

ONE LIFE

One song can spark a moment
One flower can wake the dream

One tree can start a forest
One bird can herald spring
One smile begins a friendship

One handclasp lifts a Soul
One star can guide a ship at sea
One word can frame the goal
One vote can change a nation

One sunbeam lights a room
One candle wipes out darkness
One laugh will conquer gloom
One step must start a journey
One word must start a prayer
One hope will raise our spirits

One touch can show you care
One voice can speak with wisdom
One heart can know what is true

One life can make a difference

I BEND

I bend but do not break.
I've been lost, but I'm not a loser.

I'm a wreck, but I'm not totaled.
I'm fractured but not broken.

I've failed, but I'm not a failure.
I've fallen hard but can get up again.

I'm isolated, but still I'm free.
I have been destroyed but will rebuild.

My heart is broken, but it will mend.

See, no matter how close I come to breaking,

I just continue to bend.

CURRENT AFFAIRS

Virat Kohli bagged cricketer of the year

India captain Virat Kohli bagged the International Cricketer and Batsman of the Year award during the CEAT Cricket Rating (CCR) International awards 2019.▪Pacer Jasprit Bumrahwas adjudged as International Bowler of the Year.▪Ashutosh Aman was awarded Domestic Cricketer of the Year.▪Mohinder Amarnath was bestowed with the 'CCR International Lifetime Achievement Award'.

Tiger Woods awarded Presidential medal

US President Donald Trump bestowed Tiger Woods with the Presidential Medal of Freedom, the nation's highest civilian honour.▪Woods is only the fourth and the youngest golfer ever to have received the highest American civilian award.▪Mr. Trump praised Mr. Woods as one of the greatest athletes in the history of sports.

BCCI recommended Bumrah for Arjuna Award

Board of Control for Cricket in India (BCCI) recommended 4 Indian cricketers -Mohammed Shami, Jasprit Bumrah, Ravindra Jadeja and Poonam Yadav for the Arjuna Award 2019.▪Bumrah is currently the world number one ODI bowler, while Jadeja is the world number three Test all-rounder.▪Poonam Yadav is ranked second in women's T20I rankings for bowlers.

6 Indian origin students win US Spell Bee

Six Indian-origin students are among the eight participants who won the prestigious Scripps National Spelling Bee, taking home more than USD 50,000 in cash and prizes, after defeating over 550 other contestants in an unprecedented competition in the US.▪It is the first timein the 94-year history of the competition that more than two co-champions have been named. It is a high profile test.

Four allies to hold fourth quadrilateral meet

India, US,Japan, and Australia are set to meet for the fourth time and with the latest quadrilateral meet set to occur in Bangkok.▪India has said the quadrilateral meeting is a consultative process, not a military alliance.▪The issues for discussion during the last meeting were on expected lines centered on the Indo-Pacific. It means free passage for ships and a free and open Indo-Pacific.

Rupee rises 12 paise to 69.71 against Dollar

The rupee opened strong at 69.76 at the Interbank Forex market then gained further ground to touch 69.71 per dollar amid positive opening in domestic equities, displaying gains of 12 pagainst the greenback.▪The rupee appreciated by 12pto 69.71 against the U.Sdollar in opening trade on may 30,driven by positive opening in domestic equities and weakening of the greenback in overseas markets.

US removes India from its currency watch list

India maintains ample reserves according to the IMF metrics for reserve adequacy, the US treasury department said in a report.▪India for the first time was placed by the US in its currency monitoring list of countries with potentially questionable foreign exchange policies in May 2018 along with five other countries i.eSwitzerland, China, Japan, South Korea and Germany

SpaceX launched satellites for internet serv

Elon Musk's SpaceX company launched a Falcon 9 rocket from Floridaon a mission.▪It carriedthe first batch of five dozen small satellites into low-Earth orbit for his new Starlink internet service.▪The new Starlink venture is an important new revenue stream for SpaceX.

Ola shut food delivery business

Ola has shut down the delivery business of Foodpanda, terminated 1,500 delivery executives and 40 mid-level staff.▪The company, however, has retained the cloud kitchen business operating under private labels-the Great Khichdi Experiment, FLTR brands and Lovemade.▪Ola had acquired Foodpanda in 2017 for an approximated $30 million from German-based hero company.

AI adoption to double productivity by 2021

Adoption of Alis expected to help double the rate of industrial innovation and may result in over two times jump in employee productivity in India by 2021.▪The study was conducted by research firm IDC on behalf of Microsoft.▪Organisations that have adopted AI saw tangible improvements in the range of 8-22% in areas like customer engagement, margins, andcompetitiveness.

Sundar Pichai turned down a big stock award.

The Google CEO hasn't received an equity award in more than two years. A key reason is that Pichai turned down a big new grant of restricted stock in 2018 because he felt he was already paid generously, according to a person familiar with the decision.▪Since 2016 big stock award, Sundar Pichai has collected a $650,000 annual salary and typical CEO perks such as the cost of personal security

18 hidden planets uncovered by NASA

German scientists have discovered 18 Earth-sized planets beyond solar system.▪Scientists re-analysed part of NASA's Kepler Telescope data using new method developed by them.▪They estimate the method may lead to over 100 more exoplanet discoveries from entire Kepler dataset.

Send names to fly on Mars

The US space agency has invited public to submit their names to fly abroad the next rover to Red Planet in 2020.▪Souvenir boarding passes will display names submitted by the people which will also be on microchips aboard the Mars 2020 rover.▪The rover is scheduled to launch as early as July 2020, with the spacecraft expected to touch down on Mars in February 2021

1st women astronaut to go on Moon

Mission Artemis will likely carry the first woman astronaut to the Moon.▪The mission has been named after the Greek Moon goddess who was also the twin sister of the Apollo.▪The first men to walk on the Moon did so under the Apollo missions between 1960 and 1972.▪Now, 50 years later, NASA has planned to send the first woman to the Moon in a manned lunar mission in 2024.

Facebook released maps

In a bid to fight disease outbreaks, Facebook has built new maps that can help its health partners better understand where people live, how they are moving and whether they have connectivity.▪All of these maps, when combined with information from health systems, can improve the way organisations deliver supplies and respond to outbreaks.

ABHYAS successfully tested

DRDO conducted asuccessful flight test of ABHYAS -High-speed Expendable Aerial Target (HEAT) from Interim Test Range, Chandipur in Odisha on 13 May 2019.▪The flight test was tracked by various RADARS & Electro Optic Systems and proved its performance in a fully autonomous waypoint navigation mode.▪The configuration of ABHYAS is designed on an in-line small gas turbine engine.

QUIZ

QUESTIONS

1.X is a series of autonomous robotic vacuum cleaners sold by iRobot. X was introduced in September 2002. As of February 2014, over 10 million units have been sold worldwide. X features a set of basic sensors that enable it to perform its tasks.

2. This startup was founded in 2012 by entrepreneur Sergey Petrossov, whose idea made him one of Forbes' 30 under 30 business leaders of 2016. It is also backed by Jay Z. Identify this startup which is widely regarded as Uber for private jets.

3. Silajit Majumder is an Indian Bengali male singer, songwriter, and actor from Kolkata. In an interview with MTV India, Silajit said, "I have already sold _____ approvals, and they all come with a 2-month expiry date. In an era of autographs, I used to charge Rs. 10 an autograph. Then things changed and now the trend is to take selfies with stars. I'm making the best of this as well. If I get 20 queries for gigs and five phone calls for movie scripts a day, I have at least 10 people a day asking for my _____. It's a good business deal." What did he do? Why is he in a tech quiz?

4. "Specatcles" are smart glasses that capture 10-second video. The glasses will allow the video to sync wirelessly to a user's phone for sharing purposes. Which photo sharing platform launched spectacles?

5. X is an online payments startup co-founded by Irish entrepreneurs John and Patrick Collison in 2010. X began as a startup called /dev/payments. To avoid misspellings and confusions the startup was renamed as X. When X raised $150 million at a valuation of $9.2 billion, John Collison became world's youngest self-made billionaire. What is X?

6. This game was developed and published by Nintendo for iOS and Android devices. It was released first for iOS on December 15, 2016, and will be released for Android in 2017. It became the fastest game ever to get 40 million downloads on the Apple app store, reaching the milestone within four days of launch. Which game?

7 .In August 2007, seventeen-year-old X became the first person to unlock an iPhone. He developed the limera1n jailbreak tool and bootrom exploit for iOS. X also founded the AI startup Comma.ai. Who is X?

8.Disney partnered with this technology firm to host a light show with 300 drones in Florida. The Shooting Star drones, created by this company, are controlled by a single operator and can create over four billion color combinations in the sky. Identify this company.

9. What are these?
questions for tehnical quiz

10. Demis Hassabis was a child prodigy in chess and captained many of the England junior chess teams. In 2010, he co-founded a machine learning startup(now owned by Google) which achieved a major first in March 2016. What did it achieve?

11. Which mobile phone company has produced models called 'StarTAC', 'V220' and 'SLVR'?

12. In internet and web server terminology, what does CDN stand for?

13. In which year did Steve Jobs introduce the first Apple iPhone to the public?

14. What are the first names of Nintendo's Super Mario Brothers?

15. In which decade did the first official transatlantic telephone call take place?

16. What type of computer file is a FLAC file: image, audio or text?

17. How many flights took place in total in the Vostok space programme?

18. In which decade was the Hubble Space Telescope launched?

19. Pressing Ctrl plus which letter is a computer shortcut for the 'paste' command?

20. What does 'SD' stand for in the terms 'SD card' and 'micro SD card'?

ANSWERS

1. Roomba
2. Jetsmarter
3. He charged 500 rs. To accept friend requests on Facebook.
4. Snapchat
5. Stripe
6. Super Mario Run
7. George Hotz Latest Information Technology Quiz Questions 2017
8. Intel
9. Solar roof made of glass tiles by Tesla
10. His startup Deepmind beat the world Go champion Lee Sedol 4-1 in a 5 match series.
11. Motorola
12. Content Delivery Network
13. 2007
14. Mario and Luigi
15. 1920s (January 7th 1927 between W.S. Gifford, president of the American Telephone and Telegraph company, and Sir Evelyn P. Murray, secretary of the General Post Office of Great Britain)
16. Audio (Free Lossless Audio Codec)
17. Six
18. 1990s (1990)
19. V
20. Secure Digital

UPCOMING EVENTS

1. Codefest 2019, IIT BHU, Coding Festival, Varanasi, Uttar Pradesh, 23-25th August 2019

Event Details:
CodeFest is the annual coding festival of the Department of Computer Science and Engineering, IIT (BHU) Varanasi. Our motto: Code For Glory
Organiser- IIT BHU, Varanasi
Event Dates - 23-25th August 2019

2. TECHEXPO 2019, IIT Guwahati, Tech Expo, Guwahati, Assam, 29th August - 1st September 2019.
Event Details:
Techniche (The annual Techno-Management festival of IIT Guwahati) now in its 21th edition has taken up the initiative of organizing TechExpo, with the cardinal aim of bringing to light the technological advancements made by the youth of this country and provide an opportunity to showcase their innovations on a larger platform. The prime motive is to inspire the young minds in India to engage in creating new ideas and to promote the idea of innovation very much on the lines of Make In India and Startup India.

3, IITBHU MUN 2019 (BHU) Varanasi, Uttar Pradesh, India

Event Start Date - Fri, 30 Aug '19
Event start Time - 10:30 am
Event End Date - Sun, 01 Sep '19
Event End Time - 06:30 pm

Event Descriptions:
IITBHU MUN – The conference which will take you to an expedition of intense debating and discussion on the most demanding global issues. This conference aims to sensitize the youth towards the germane issues surrounding them and give them the perfect platform to make them conscious of their roles as concerned individuals in the society, to make them pause and think of the solutions to solve the fundamental issues of global importance. Being put together by a resolute team of students,

4. Big Bang: The Astronomy Quiz organized by IIIT-Delhi, Shyam Nagar, Okhla Industrial Area, New Delhi, Delhi, India

Event Descriptions:
Big Bang is an astronomy quiz, where we aim to
provide you a cosmic quizzing experience. Avoiding your generic QnA
quizzes we want to entangle and boggle your minds. It's time we made
quizzing great again.
Event Timing
Event Start Date - Tue, 23 Jul '19
Event start Time - 10:30 am
Event End Date - Tue, 23 Jul '19
Event End Time - 06:30 pm

5. Eximius 2019 - IIM Bangalore's Entrepreneurship Summit organized by IIM Bangalore, Bannerghatta Main Road, Opp to, Apollo Hosptials, Bilekahalli, Bengaluru, Karnataka, India

Event Descriptions:
Eximius – Entrepreneurship Summit of IIM Bangalore, scheduled from 9th to 11th August 2019 is a summit comprising of events, workshops and speaker sessions packed with excellence and innovation. It stands for excellence and the spirit of entrepreneurship is celebrated in the three-day national summit. Eximius draws participants from across India and features case competitions and workshops in entrepreneurship, finance, marketing, healthcare, analytics, fine arts among many others.

Event Timing
Event Start Date - Fri, 09 Aug '19
Event start Time - 06:00 pm
Event End Date - Sun, 11 Aug '19
Event End Time - 08:30 pm

THANK YOU READERS!

Send us your articles for next edition @

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