



DHANEKULA INSTITUTE OF ENGINEERING & TECHNOLOGY

approved by AICTE, New Delhi, Accredited with NAAC'B' Grade

COMPUTER SCIENCE & ENGINEERING



CSE

LEAFLET

volume 5 (18-19)

issue -5(Feb-March)

Department Vision:

To empower students of Computer Science and Engineering Department to be technologically adept, innovative, global citizens possessing human values.

Department Mission:

To Encourage students to become self-motivated and problem solving individual To prepare students for professional career with academic excellence and leadership skills. To Empower the rural youth with computer education. To Create Centre's of excellence in Computer Science and Engineering.

DEPARTMENT ACTIVITIES:

Real time learning @ 5 days workshop on **AWS TECHNICAL ESSENTIALS**

The Department of CSE organized a workshop on "AWS TECHNICAL ESSENTIALS " in Association with APSSDC for II & III year students during the period i.e. 25th feb-27th feb & 18th feb to 22nd feb 2019. HOD of CSE and other faculty members coordinated the program. This workshop will helps the students about to know the importance of cloud computing how they can store data in cloud and how they can access the data in cloud environment .



EXPLORING PRACTICAL LEARNING @WORKSHOP ON TEZ SEDI BUS

STARTUP BOOT CAMP

The College level Entrepreneurship development cell organized a 2-Day workshop Training Program on "business plans" During 26th -27th february'19. Mr. Col B.S. Rao & Miss. Nanditha Sethi were the resource persons of that program. The resource persons address the students regarding startup Business plans & innovations. Based on the Business plans generated by students , The resource persons selected 2 teams (each team of 8 members) and offered them 6 months free Mentorship in Hydra bad which nearly cost 60K per each batch. Dr. K. Ravi ,Principal of Diet, inaugurated the program in the presence of all dept HOD's and other faculty members, are attend for the program and Student members Mr. Gopi Krishna, Mehar, and other students coordinated the event.



2nd Innovation Day

It is platform to support budding entrepreneurs' with start up or business idea's. Mr. Manish Vig founder of **World1** solutions New Delhi. Mr.Tomoyuki Yamato Director World1 solutions Japan are the resource persons of this program. They gave suggestions for students regarding startups. 'DT'(Diet Talks) was the major attraction for that program. After displaying the innovative idea's top 3 teams were selected among which 1st team was awarded with a scholarship of **Rs.1 lakh** from **Forbes Business School** and also the college management announced **Rs.10k** cash prize. Finally Resource Persons gave opportunity for the students with best innovative idea for visiting **Belarus(Europe)**



Annual Day Celebrations

Dhanekula Institute Of Engg &Technology celebrated the annual day on 2nd march 2019 in open auditorium. The event was inaugurated by Mr. Arja Srikanth IRS in the companionship of Mr. K.V.S. Baba ,chairman managing director, power system operation corporation sytem, New Delhi ,Sri Dhanekula Ravindranath Tagore Chairman, Sri Dhanekula Venkata Bhavani Prasad Secretary & Correspondent ,Sri D.K.R.K. Ravi Prasad Addl. general manager BEL Machilipatnam, Dr.K.Ravi Principal , DIET.

Dhanekula Ravindranath Tagore garu the Chairman of Dhanekula institute of engineering and technology handing over the prize to the winners in the eve of Annual Day 2k19. There are many number of cultural programs that are conducted on that day and department of CSE had triumphed many awards.



Farewell Day Celebrations

3rd year students of cse gave Farewell for final year students on march 15th 2019. final year students share their lot of academic experiences



Project Expo

Students of final cse done projects on Internet Of Things : IoT is a concept of connecting smart devices through the Internet. Those smart devices can collect and exchange data between them through the cloud. They sense the real world using their sensors and perform the tasks using their actuators(like motors). So, It will be helpful to other beginners too. hence students explained that, what is IoT, how to start, where to start, how the run IoT based systems etc., what are the prerequisites, and how to move to the next level, etc...

- Dr. K. Ravi principal, Dr. Suresh HOD CSE and other faculty members has visited that project Expo



Student Corner:

Students Participation:

It is proudly say that our final year student of K. Eswar attended conference at US. The Harvard college Project for Asian and International Relations (HPAIR) was founded to create a forum of exchange for students and young professionals to discuss and learn about the most important economic, political and social issues facing the Asia-Pacific region. Since 1991, HPAIR has organized 54 conferences in 12 different host countries, touching the lives of more than 32,000 students and young professionals. Join us at the 2019 HPAIR. Harvard College Conference at Harvard University in Cambridge ,Massachusetts. On 17th Feb ,2019 all the delegates from energy and environment sustainability are divides into teams to present there ideas. Our team gave a model using machine learning which reduces the food waste in food processing industry



Students Achievements



It is proudly say that final year students got gold and silver medals for their academic performance, Management ,Principal ,hod of cse appreciated the awardees.



K. Nandini Durga Gold Medal Winner



Ch. Geetha Madhuri Silver Medal Winner

Placements

The software giant selected 6 candidates from the final year students of DIET in february month for the Academic Year 2018-19 .The Management, Director, Secretary, Principal, HOD & Faculty congratulated the selected candidates on their superlativeachievement.

S.No	Name	Roll No	Company
1	Sri Harsha Ala	158T1A05A3	CTS
2	Rohitha Nekkhalapu	158T1A0578	CTS
3	Vemula Prathyusha	158T1A0570	CTS
4	Madhuri Chimata	158T1A0552	CTS
5	Mounika Parasa	158T1A0558	CTS
6	Mohana Harika Velagapudi	158T1A0556	CTS
7	Sai Venkat Akhil Gopiseti	158T1A0588	Atos Syntel
8	D.M.N.Vardhini	158T1A0557	Atos Syntel
9	Ch.Sowmya	158T1A0599	Atos Syntel
10	D.Sasi Pavan	158T1A0592	Atos Syntel
11	K.Sandhya	158T1A0590	Atos Syntel
12	Sk.Samarin Banu	158T1A0594	Atos Syntel
13	U.anudeep	158T1A0505	Atos Syntel

- ❖ It is proudly say that our final year student of cse G.Sai Venakata Akhil Qualified in GATE 2019 .Principal Dr.K.Ravi ,HOD Dr.Suresh appriciated that student.



158T1A0588

IV-CSE-B

Staff Corner

A PhD or Doctorate is the highest form of education that anyone can get. This is not just a degree. It's one of the sweetest fruit that anyone in the field of education gets after years and years of hard work. Perseverance is the key here. It shows how persistent you are. All your life you are going to be highly respected and recognized for your achievement and your degree. Congratulations on getting your PhD/Doctorate degree. Finally, all your years of hard work and turmoil have paid off. You will now be called Dr. **K.S.V.A Sateesh Kavuri** and that is a great deal of respect.

- **Mr. K.S.V.A Sateesh Kavuri** ,Associate professor of cse department had awarded P.hd titled as "**improved attribute encryption Models for Cloud Services** the management and other faculty members appreciated for his achievement



congratulations sir

- Department Of Cse Encourage The Faculty To Upgrade Their Academic Progress. The Faculty Of Cse Mr. K. Sandeep, Asst.Prof, Mr.M.Ravi Kanth, Asst.Prof, And Other Faculty Members Of Other Dept's Also attended 1day workshop Iit Bombay As Moodle
- IIT Bombay organized a one day Coordinator Workshop on Friday, 1 March 2019 at IIT Bombay. Mr.K. Sandeep, Asst.Prof & Mr.Mishra Ravikanth attended the workshop for Teachers and System administrator for the project 'Pandit Madan Malaviya National Mission on Teachers and Teaching'(PMMNMTT),funded by the Ministry of Human Resource Development, Government of India.
- IIT Bombay organized a one day Main Workshop on Friday, 15 March 2019 at Dhanekula Institute Of Engineering & Technology (RC) Teachers and System Administrator from nearby colleges to attend at the participating RC through A-VIEW.
- Dhanekula Samskruthi conducted events for Anuual day in that CSE staff P. Sunitha Asst.Prof, Y.Salini Asst.Prof got 1st prizes in Talent Hunt.



STUDENT ARTICLES

What is the Dropbox desktop application?

The downloadable Dropbox desktop application—also known as the desktop client—runs on Windows, Mac, or Linux operating systems and gives you access to your Dropbox directly through a folder on your hard drive. (Visit this article instead if you are running Windows 10 in S mode) In addition to using dropbox.com to access and share your files, we recommend that you download and install the Dropbox desktop app to get the most out of Dropbox.

Using Dropbox on your computer is just like using any other folder on your hard drive, except the files you drag into your Dropbox folder automatically sync online and to any other computers or mobile devices linked to your account. The app runs in the background and automatically keeps your files in sync and backed up online. It's like having the same folder on all of your computers and mobile devices at the same time. Using the desktop app means you won't have to manually upload or download files in your Dropbox folder. The app automatically watches your Dropbox folder and keeps your files in sync for you. Any time you save a change to a file and are connected to the internet, that change will sync everywhere you have Dropbox installed. The desktop app even works when you're offline. The next time you're online, Dropbox will sync changes just where it left off.



G. Krishna Sai, 2nd CSE
(178T1A0525)

what is Internet of Things(IOT) technology?

IOT - Internet of Things:

IoT is short for Internet of Things. The Internet of Things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the communication that occurs between these objects and other Internet-enabled devices and systems.

IoT Extends Internet Connectivity:

The Internet of Things extends internet connectivity beyond traditional devices like desktop and laptop computers, smartphones and tablets to a diverse range of devices and everyday things that utilize embedded technology to communicate and interact with the external environment, all via the Internet.

The Future of IoT

As far as the reach of the Internet of Things, there are more than 12 billion devices that can currently connect to the Internet, and researchers at IDC estimate that by 2020 there will be 26 times more connected things than people.

According to Gartner, consumer applications will drive the number of connected things, while enterprise will account for most of the revenue.

IoT adoption is growing, with manufacturing and utilities estimated to have the largest installed base of Things by 2020.

Category	2013	2014	2015	2020
Automotive	96.0	189.6	372.3	3,511.1
Consumer	1,842.1	2,244.5	2,874.9	13,172.5
Generic Business	395.2	479.4	623.9	5,158.6
Vertical Business	698.7	836.5	1,009.4	3,164.4
Grand Total	3,032.0	3,750.0	4,880.6	25,006.6

Source: Gartner (November 2014)



K. Rajasekhar, 2nd CSE

What is a python REPL?

A read-eval-print loop (REPL), also termed an interactive toplevel or language shell, is a simple, interactive computer programming environment that takes single user inputs (i.e., single expressions), evaluates them, and returns the result to the user; a program written in a REPL environment is executed piecewise. The term is usually used to refer to programming interfaces similar to the classic Lisp machine interactive environment. Common examples include command line shells and similar environments for programming languages, and is very characteristic of scripting languages.[1]

Contents

Overview:

In a REPL, the user enters one or more expressions (rather than an entire compilation unit) and the REPL evaluates them and displays the results. The name read-eval-print loop comes from the names of the Lisp primitive functions which implement this functionality: The REPL of CLIM, SLIME, and the Symbolics Lisp Machine can also read back unreadable objects. They record for each output which object was printed. Later when the code is read back, the object will be retrieved from the printed output.

Lisp specifics

Implementation

To implement a Lisp REPL, it is necessary only to implement these three functions and an infinite-loop function. (Naturally, the implementation of eval will be complicated, since it must also implement all the primitive functions like car and + and special operators like if.) This done, a basic REPL itself is but a single line of code:

```
(loop (print (eval (read))))
```

One possible implementation of eval is as a recursive interpreter that acts on the Lisp data structure created by using the function read to read a Lisp form as an s-expression. Another possibility is to it.

K,Shiva Kumar,2nd CSE



(178T1A0545)

5 Most Use full Tools for Programmer and Developer

5 Useful tools for Coders:

Programming can be a very hectic task, especially if you are handling a complex project. Sometimes even small projects can give you a hard time. Have you ever found yourself at the verge of giving up in the middle of a project?

1. [Devdocs.io](https://devdocs.io): This is API documentation for all the popular programming languages. It combines different API documentation into one powerful tool. It also works on different frameworks of programming languages. The tool has an instant search feature that you can use to locate any code snippet you want. You can also use it when offline.

2. [Glitch.com](https://glitch.com): Glitch is a versatile tool that allows programmers to do different actions. You can use it to create web apps in the browser. If you want to see similar projects that other people have made, you can simply import GitHub repos. It will be much easier to remix those apps hence shortening the development process.

3. [Codeply.com](https://codeply.com): Code ply is an ideal tool for front-end developers. It can help you to build responsive layouts using Bootstrap. It also has the Semantic UI and CSS tools both of which are important for front end development.

4. [Babelis.io](https://babelis.io): The tool is best suited for JavaScript developers. It can transform your modern JavaScript code so that they become compatible with the older browsers.

5. [Httpie.org](https://httpie.org): This is a command-line tool that programmers use to make HTTP requests to the web servers and also to the RESTful APIs. The tool is regarded as a simpler version of CURL thanks to its capability.

K.DHANUNJAY RAJU,2nd CSE



(178T1A0546)

CHAT BOTS

Did you ever thought that a machine speaks to us just like a human, Is it possible? Yes, It is possible . The best example for this is Google Assistant, Siri, Cortina, etc., And these applications work on the technology called Cognitive Computing, chat bots is a part of Cognitive Computing. Now a days the things became easy, you can build and train your own cognitive model (chat bot) using some services like IBM Watson, Dialog flow, etc.,



Let us start building our own Chat Bot with IBM Watson Conversation,

1) Blue mix Registration:

(NOTE : If you already have Blue mix registration jump to step 2.)



Go to <https://www.blueix.net> and click on “Create a free account” . Fill out the form, and click on “Create Account”. You will receive an email form confirmation, check it out. Open the email sent, and click on the link to confirm. Click on the “Confirm Account”. Your account has been confirmed successfully. Click on the login and enter your credentials. As soon as you login in the system, you have to create an organization name, for instance your name, the name of your company, etc, and click on “Create”.

The second step before you start your first application, consume a service on Blue mix you have to create a space, a space is one way to organize yours projects, and configure teamwork according to area or environment. For now let’s create a space, for example “Dev”, and click “Create”. That’s it! You’re ready to go! Click on “I’m ready” and let’s start our first app. That’s your first screen, it’s your blue mix dashboard. For now, click on “Catalog”.

BOT

Go to Watson group (left side), and click on Conversation. As most of all service on Blue mix in this screen you have a description about the service, business model and a link to detailed documentation. Change the last part of the name of service to “-about me”. It’s not necessary, but it will help me us find our service easily.

Here you go!! Now you have a Watson Conversation for you. This is a service panel, where there is the service credentials and a button to open a tool. So, let’s open our tool and teach Watson about our bout. Click on “Launch Tool” button.

Now you need to create a workspace, which is like a knowledge domain, or the space for a specific area which is intended to develop a Bot, for instance

“Support area” or “Customer

Attendance Service”, etc. In this case as the proposal is to develop a bot to answer about ourselves. Click on “Create a Workspace. By the way, the service brings a bot example, “Car Dashboard”. Name it “About me”, or as you prefer, and choose the language, in this case “English”. Click on “Create”. Inside your workspace, you need to create your intents. Intents identify according to the intention of the user target, for instance, if we were creating a “disk Pizza”, one intention could be “Do an order” or “Ask a pizza”, and for an instance we have given at least 5 phrases to Watson learned the standard, so an intention has a group of possibilities of user interaction with your bot, which will have a response for this group. Let’s click on “Create New”.

In the column “Intent name”, insert “who am i”, the “#” the system includes automatically, again this name is a classification for a group of possibilities that users normally use to interact when they have this intention, ok? As mentioned previously, include at least 5 possibilities, could be more, but the recommendation is about 10.

Include the examples above, or as you prefer. Have in mind that it is not necessary to include all variations, as Watson works with taxonomy and understands the standard. Click on the first line, type the first example, and type enter to jump to the next, do the same until you reach the last one. Then click “done” button to conclude this intention. Click on “Create new” to create the next intention as follows:

Don’t forget to click on “Done” when you finish. Go to the next one.

- Click on “Create new” and create the next one as follows:
- Click “done” when you finish. Click on “Create new” to create an intention to respond about what you do.
- Click on “Done” and let’s go to create the last one to respond about your hobby, so what do you like to do in your free time.
- Click “Done” and let’s go to entities. Click on “Entities” as shown in the screen above.

Now you are going to create entities. An entity represents a class of object or a data type that is relevant to a user's purpose. By recognizing the entities that are mentioned in the user's input, the Conversation service can choose the specific actions to take to fulfill an intent.

- Click on “Create new” and follow the example below. In this example you are creating an entity to be specific for responses about what you like to do in your free time, for instance: “Do you like to play soccer?” “ on this case you have intention and entities, but in case the user asks: “What do you like to do?”, it’s more generic, so your answer must be more generic as well. Attention: For this lab keep Fuzzy Matching “off”. Entity has a name and a group of possibilities, and for each possibility you can add synonyms, once Watson reads the correct word to capture the entity. Type “sport” on the field Entity (@ is included automatically by the system), then include in the list above the values above, as listed above, and click “Done”.

That is it for entities. Now let’s create our dialog. Click on “Dialog” as shown above. At this point you are prepared to complete your bot, creating a dialog flow, which will be based on intentions and entities you created. Click on “Create” and follow the next steps. The system generates automatically 2 nodes, “Welcome” that is the first node executed by the service in the first requisition, such as “Hello, How can I help you?”, and “Anything else”, which is the last node verified condition, that means no one in the flow dialog no one of the nodes of this flow has attended the conditions. Let’s include a node to if the intention of the user is greetings, in this case you will create a specific response for that.

Tip: Click on the border of a node to have the options to add more nodes in the “+” signal.

Click in the “+” signal below “Welcome” node. Include in the first field the name for this node (it’s not mandatory). In the field if, where you can validate a condition based on Intention, or Entity, or context variable, or a combination of them. In this case type “#”, wait the system shows the list of intentions, so click on “greetings”, Go to Responses and add the following response.

Click in the “x” signal on upside right to close this node, and click in “+” below of greetings node.

Name it as Goodbye, and include #goodbye in the condition, so go to the response and include the response, as the following.

Once again click on “+” above Goodbye node.

Include the node to respond to the #what do you do intention, as shown above. And create another one for #who am i as the screenshot below:

Create another node for # hobby intention as the following, but this time keep the response empty, because you will use another technique to be specific, once you created entities for this intention.

Click on the signal “+” in the tight side of node “Hobby”.

Name this node as Soccer, and add @sports: Soccer in the condition, and the response, which is specific for soccer. Feel free to change the response according to you. Now we go include other node below soccer (click on “+” signal below soccer and so on), to treat other entities sports as the following:

For Bike:

For Tennis:

For football:

In case the user do not mentioned no one of the entities above, we need to have a generic response for that, so you have to include a “anything _else” method, as the following:

Ok! You already have all the nodes you need, but you have to n form to Watson to entry in the entities condition when the #hobby condition ne true. Go back to the #hobby node and click on icon “Jump to” (third one in the bottom of node), as shown below:

The system will show the following information in a green bar, that means it is waiting you indicate for where it have to jump. Click on “Soccer” node, and the system will show 2 options as the following:

click on “Go to condition” button. The screen will looks like as the following:

That’s it! Now let’s test it and learn more and more. Click on “...” bottom in the corner in the right side above. Talk to it!

Congratulations!! Now we can plug this service in any channel as you want, such as Face book messenger, Telegram, slack, etc.

3) Plug your bot to a web page :

Go to Git Hub page, case you do not have a account create one.<https://www.github.com>

Create a app on Blue mix and clone a github source code. Back to Blue mix catalog and create “Continuous Delivery” service, as the following:

Click on “Continuous Delivery service” and go the next page. Change the name as shown above and click on

“Create” button.

Click on “Start here” over “Start from tool chain template” Click on “Simple Cloud Foundry tool chain” service. Open a new browser tab and open <https://www.github.com>, and create an account if you do not have.

Fill out the fields and click on “Sign up for Git Hub” and follow the steps to create your account. As soon as you have created your account go to the URL:

<https://www.github.com/sergiogama/chatbot> (Consider this one instead of /ibm - dbg-chat)

Click on “Fork” up right in the screen as the following:

Now you have a copy of the web front end for your chat bot, as the following:

Copy URL and Back to blue mix browser tab.

Change the name of “Toucha in Name” and paste the URL copied previously on “Source repository URL” field, and click on “Create” Button. (Use /chatbot instead of /ibm-dbg-chat)

Click on “Eclipse Orion Web IDE”. Open the folder tree in left side and open bot.js file, as the following: Now let’s change the code to insert your Watson Conversation credentials, in lines 26, 27 and 32, in the right side. Back to browser tab of your conversation, and click on menu icon in up left side, as the following:

Click on “Deploy” option. In the next screen you have the information need as the following:

Copy the credentials and work space _id and back to Dev Ops browser tab. Change the code as the following: Now, open manifest.yml file in the left side pane, and change the host name as the following:

Tip: change to your name, but pay attention as this host name will be part of a public domain. In the example below will be <https://ibm-dbg-sergiogama.mybluemix.net>

Deploy your chat bot, just click on “Run” icon as shown above. Wait 1 to 3 minutes, until the bullet comes green again, as the following:

As developer click on the icon as shown above, cross the finger, and...inform to Watson to entry in the entities condition when the #hobby condition ne true. Go back to the #hobby node and click on icon “Jump to” (third one in the bottom of node), as shown below:

The system will show the following information in a green bar, that means it is waiting you indicate for where it have to jump. Click on “Soccer” node,

and the system will show 2 options as the following:

click on “Go to condition” button. The screen will looks like as the following:

That’s it! Now let’s test it and learn more and more. Click on “...” bottom in the corner in the right side above. Talk to it!

Congratulations!! Now we can plug this service in any channel as you want, such as Face book messenger, Telegram, slack, etc.

4) Plug your bot to a web page :

Go to Git HUB page, case you do not have a account create one.<https://www.guthub.com>

Create a app on Blue mix and clone a github source code. Back to Blue mix catalog and create “Continuous Delivery” service, as the following:

Click on “Continuous Delivery service” and go the next page. Change the name as shown above and click on “Create” button.

Click on “Start here” over “Start from tool chain template” Click on “Simple Cloud Foundry tool chain” service. Open a new browser tab and open <https://www.github.com>, and create an account if you do not have. Fill out the fields and click on “Sign up for Git Hub” and follow the steps to create your account. As soon as you have created your account go to the URL:

<https://www.github.com/sergiogama/chatbot> (Consider this one instead of /ibm-dbg-chat) Click on “Fork” up right in the screen as the following:

Now you have a copy of the web front end for your chat bot, as the following:

Copy URL and Back tp blue mix browser tab. Change the name of “Touchain Name” and paste the URL copied previously on “Source repository URL” field, and click on “Create” Button. (Use /chatbot instead of /ibm-dbg-chat)

Click on “Eclipse Orion Web IDE”. Open the folder tree in left side and open bot.js file, as the following:

Now let’s change the code to insert your Watson Conversation credentials, in lines 26, 27 and 32, in the right side. Back to browser tab of your conversation, and click on menu icon in up left side, as the following:

Click on “Deploy” option. In the next screen you have the information need as the following:

Copy the credentials and work space _id and back to Dev Ops browser tab. Change the code as the following:

Now, open manifest.yml file in the left side pane, and change the host name as the following:

Tip: change to your name, but pay attention as this host name will be part of a public domain. In the example below will be <https://ibm-dbg-sergiogama.mybluemix.net>

Deploy your chat bot, just click on “Run” icon as shown above. Wait 1 to 3 minutes, until the bullet comes green again, as the following: As developer click on the icon as shown above, cross the finger, and...
by Y. Lakshmi Sai, (158T1A0548),U. Bindu Madhavi (158T1A0518),IV CSE-A

Sk. Thaslima, 178T1A0598



A.Swathi, 178T1A0501



GIT

Git is an **Open Source Distributed Version Control System**. Now that's a lot of words to define Git.

Let me break it down and explain the wording:

- **Control System:** This basically means that Git is a content tracker. So Git can be used to store content—it is mostly used to store code due to the other features it provides.
- **Version Control System:** The code which is stored in Git keeps changing as more code is added. Also, many developers can add code in parallel. So Version Control System helps in handling this by maintaining a history of what changes have happened. Also, Git provides features like branches and merges, which I will be covering later.
- **Distributed Version Control System:** Git has a remote repository which is stored in a server and a local repository which is stored in the computer of each developer. This means that the code is not just stored in a central server, but the full copy of the code is present in all the developers' computers. Git is a Distributed Version Control System since the code is present in every developer's computer. I will explain the concept of remote and local repositories later in this article.
- **Control System:** This basically means that Git is a content tracker. So Git can be used to store content—it is mostly used to store code due to the other features it provides.
- **Version Control System:** The code which is stored in Git keeps changing as more code is added. Also, many developers can add code in parallel. So Version Control System helps in handling this by maintaining a history of what changes have happened. Also, Git provides features like branches and merges, which I will be covering later.
- **Distributed Version Control System:** Git has a remote repository which is stored in a server and a local repository which is stored in the computer of each developer. This means that the code is not just stored in a central server, but the full copy of the code is present in all the developers' computers. Git is a Distributed Version Control System since the code is present in every developer's computer. I will explain the concept of remote and local repositories later in this article.

Why a Version Control System like Git is needed

Real life projects generally have multiple developers working in parallel. So a version control system like Git is needed to ensure there are no code conflicts between the developers.

Additionally, the requirements in such projects change often. So a version control system allows developers to revert and go back to an older version of the code.

Finally, sometimes several projects which are being run in parallel involve the same codebase. In such a case, the concept of branching in Git is very important.

Let's get started on using Git now

Rather than mentioning all the concepts at once, I will explain the concepts of Git through an example so that it is easier to follow.

Download git

This link has details on how to install Git in multiple operating systems:

<https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>

Verify if Git is installed by using the following command in the command prompt:

```
git --version
```

Create your local Git repository

In your computer, create a folder for your project. Let's call the project folder

```
simple-git-demo.
```

Go into your project folder and add a local Git repository to the project using the following commands:

```
cd simple-git-demo
```

```
git init
```

The **git init** command adds a local Git repository to the project.

Let's Add some Small Code now

Create a file called **demo.txt** in the project folder and add the following text into it:

Initial Content

Here we will be demoing with just plain text instead of actual code, since the main focus of this article is on Git and not on any specific programming language.

Staging and Committing the code

Committing is the process in which the code is added to the **local repository**. Before committing the code, it has to be in the **staging area**. The staging area is there to keep track of all the files which are to be committed.

Any file which is not added to the staging area will not be committed. This gives the developer control over which files need to be committed.

Staging

Use the following command for staging the file:

```
git add demo.txt
```

In case you want to add multiple files you can use:

```
git add file1 file2 file3
```

If you want to add all the files inside your project folder to the staging area, use the following command:

```
git add .
```

Use this carefully since it adds all the files and folders in your project to the staging area.

Committing

Use the following command to commit the file:

```
git commit -m "Initial Commit"
```

“Initial Commit” is the commit message here. Enter a relevant commit message to indicate what code changes were done in that particular commit.

Git Status and Git Log

Now modify the `demo.txt` file and add the following snippet:

Initial Content

Adding more Content

Status

Use **git status** to find out information regarding what files are modified and what files are there in the staging area- it shows other information as well, which we can ignore for now.

Use the following command to see the status:

git status

The status shows that `demo.txt` is modified and is not yet in the staging area.

Now let us add `demo.txt` to the staging area and commit it using the following commands:

git add demo.txt

git commit -m "demo.txt file is modified"

Log

Use **git log** to print out all the commits which have been done up until now.

The command used for this is:

git log

The log shows the author of each commit, the date of the commit, and the commit message.

by **G.Akhil, IV CSE**

Technical Review Committee

Dr.S.Suresh HOD& Professor,

Dr.A.Srinivasa Rao,Professor

Editorial & Design Team:

Faculty:Ms.P.Sunitha,Asst.Prof

Student coordinators s:

Mr.S.Varsha, Ms.Usha, IV/IV CSE