What should be the single colour so when the other side is full there is no more space for the new vehicle to go there then you change the colour to red so the change in the signal colour is based on the state of that what is that in the other side of the road is that right now the road is empty what should I do with the signal should we change it to be so the change in signal is done based on the state of that particular and you are directly subscribing to the signal and you just watch that it is changing to green they can take off and when you find it is red you slow down and you stop all this is done by the police consider the police constable does not come to every single driver and tell him hey please wait stop the thing he does not tell you please go to the next one he does not talk to you independently but he gets the job done by just changing the fixing so if you look at this part there are four candidates here one the road to the driver 3 the police constable 4 the signal instead directly talking to you through the signal he manages to get you to do what he wants to do indirect link between the police constable and the driver is done through the city but if you are not watching the signal busy with your phone just miss the green signal and you will not do what you want to do so it is all subjected to subscribers we call this as publisher subscriber algorithm hopefully publish it subscriber publish it is a police constable subscriber is a driver and in between what do you have sigma a signal is an event that is raised when the state of a data is changed the road in the opposite direction is the state if it is full the signal is changed to red the person who makes the change is called as the publisher the person who makes a change to the signal is called as a publisher and his changes driven by the state of the object the object in question is a traffic in the road if it is empty he will change the signal to or he will publish the signal green if it is full he will make it red you the driver you are the subscriber that can be multiple subscribers one or more subscribers to that signal and when the signal changes you will appropriately react to it you may stop or you would move you get this engineering principle how it works signal is a multi cast delegate signal is a multicast setting the subscribers are the methods that should execute method signal resistance I have a stop method stop vehicle method that is subscribe to red signal the red signal is one delegate green signal is another delegate and stop vehicle will be subscribing the red signal delicate and move vehicle will subscribe to the green signal delegate both are delegates both are multicast delegates so all events are multicast so I should have two delegates and I have bunch of all methods that subscribe to those respective delicates and I need to have a police constable who will raise the appropriate delegate that is the event based on some state so there are four elements here one the traffic which is the state 2 the signal which is a delegate 3 the police constable who is going to operate on that who is going to raise the event and 5 a method that reacts to the state method that subscribes to an event the method that comes on the right hand side of plus equal to after plus equal to you have a method yesterday you had to calculate dot add calculator dot multiply those are the subscribers the code that raises the event that is called as a publisher but the delegate is the clear the beauty here is the polyes makes the car driver to move without knowing who the car driver is and it does not directly talk to the car driver but he gets a job done in direction two objects are able to work with each other without directly calling the specific methods this is what is late binding and indirection is offload getting two objects to be associated with each other the Police Constable object and the driver object come together at runtime and the police object is able to call stop or move methods of the car without even knowing the car object and getting them to work the method name also the police possible does not know he does not know whether you named it as run or move he does not know or he may be called it accelerate he does not know the name of the method but he still gets a method to run he does not know whether you call it stop or end he could have named it different but without even knowing the name of the vendor he is still able to call it this is the beauty of event driven programming is event driven programming the only way to get things done no but this is one engineering principle benefit of it in direction 2 unknown objects are able to come together at runtime and get them to work with each other and get one object called method of other object that is the benefit and beauty of event driven programme there are requirements at runtime that you would want this to be implemented and it is possible today morning I went through a message creator and the account class but if you notice in the Bentovel method and the deposit method I had to explicitly create an instance of message creator my job is to only work with account my job is to modify the current balance why do I have to even create the object called message creator and call the send message and send email or send sms methods why should I do that how is that my problem my job I’m an accountant my job is to work with the bank deposit or withdraw spend the money. Collect money deposit withdraw money spend sending SMS to all of you saying Happy Birthday good morning that’s not my job but that is exactly what I am doing here why should the account class of the account controller class should why should it work with message controller that is all given in keeping in front of the space is that a way that these two can come together at runtime without explicitly creating instances of those classes without creating the message created object inside the account controller can I do this ok let us assume I have two flags a red colour flag if I show you will not get AI have a green colour flag I show you go for lunch I do not have to tell you go for that they just show the signal and it should work can I put that in code how do I represent this logic that I am telling you in code with the help of delegates and events I am going to do that I want to change that existing code and convert it into event driven programming then the account creator will do deposit and it will raise a signal saying hey I had deposited it does not mean send sms it does not mean send email you just do deposit and it will say I have deposited that’s it it is up to the message created to react to it is it a picture like the car driver it is the message creator who should be waiting for the signal as soon as he sees a signal he does not even know the signal was raised by the postman I mean you are a car driver sitting there do you know who changes the signal you do not even know the pollution but he still reactive you are focusing on the signal not the person not the publisher the subscriber does not know the publisher the publisher does not know the subscriber but they still react with each other thanks to the C we all subscribe only to the signal I change the signal you react to the signal that is the design mode so the whole software whatever I done I am going to change it slightly very small change I have to do one I will not create an instance of message creator in my account class I will not call the methods explicitly I don’t want to create an instance of message controller I have ASMS signal to which have to pass the account tender for sms I need to pass phone number and message similarly email message handler so what I am not doing is I am not creating an instance for message controller I am not explicitly calling whatever available methods that I have no idea what methods are there but these two are This was the signals that has already been declared and I am just calling I done my job I brace my signal and quit The two events I created for my class and this is a so my account controller has an event called email signal plus equal to Message controller.send email so every time the signal is raised you find this method executed the account controller also has one more event as well which is send message sms signal dot send Sms notice the absence of the parenthesis I am taking the address of send email storing into the event address of send sms storing into the event multicast verification this happens to be the first functional pointer but even the first functional pointer has to be put through plus equal to Y because events are all by default multicast delicates you have it so if I use minus equal to what happened it will be removed plus equal to land at minus equal to will remove it now let me cheque the account balance now correct correct the signals will not run right now because I am not doing a deposit or a withdrawal but I am just checking my current balance Some planned deposit funds I call the account controller let me put in ₹1,50,000 Opening bound to zero and depositing ₹1,50,000 the balance after deposit has become one lakh fifty but what is also happening in between is an sms got sent and also a this will also happen when I do a deposit withdrawal so let me withdraw ₹25,000 I am going to withdraw opening balance zero deposited 1,50,000 and after withdrawal it got reduced to one lakh twenty five percent and every time I withdraw and every time I deposit and it is a legal transaction within the limit I am getting an sms and an email signal was raised and the subscribers reacted to it this is given to a model so this is how you approach code so that make them one of the important principle for making a code maintainable is loosely coupled keep your application do not have them tightly coupled keep them loosely coupled at the same time cocos are meaning being friendly be a friend but don’t control the person be friendly be focused with and loosely cover so people can be independent but at the same time they can also different not to be controlled that is what we are trying to do here the account control class is not dependent on this message controller the message controller is not dependent on the account controller they are independent they exist on their own at runtime through events they come together they serve each other the job is done they go on their own way any changes done to the message will not have an effect on account any changes done on account will not have an effect on the message as long as the delegate signature and the subscriber signature match each other they are brought together this technique is called as late binding when two objects are brought together at runtime compile time they do not know each other but at runtime they come together and they serve each other this technique is called as lake band the functional pointer address of a function is bound to be the follow at runtime hence we call it as the binding is technically done with the help of plus equal to finding the very important concept loosely coupled applications which are cohesive in nature are easy to maintain change modification is easier they are scalable also a tightly bound application they may work very well but if tomorrow I have to make any small change to them I may end up rewriting the entire product from the scratch that is the difference between early binding and lately early binding or tightly coupled late binding are loosely thank you see you after lunch.

Play the new class Lambda demo

Working with Threads

***Day 8***

System.IO

Stream can be of two types input stream and output stream if data flows into my application then we call it as an input stream and if the data flows away from my application then I would call it as output string the direction of flow determines whether it is an input or output that is, the steady flow of data volume steady flow better more or less it’s one bite at a time what does the quantum of data that you can read from a stream at the given point of time you’ll only be able to read one byte but my screen will have a large a big array of bytes stream is literally going to have an array of bytes in a queue it’s flowing towards my application and it’s waiting there all I have to do is read when I read how many bytes do I need at a given time only one so if I have 1000 bytes how many times should I read 1000 times have to read and if I read it for the 1001 there will be no data to read from so we’ll return -1 remember bits are in ASCII value hey so will be character after character you’ll get it as an integer and if you read beyond the quantum or whatever available data is all the data has been great there’s nothing to read from the screen then the read will return up -1 value indicating you have no more data to read read is a a stream is a channel through which data flows you can either receive the data through an input stream or you can send the data through output stream so I’m printing my file file print what is happening here the data that I have in my application in my Word document right so cheap has to be converted into arrays of bytes and then using an output stream I have to send it to my friend repeat I would like to print my pages in my Word document what do I do a Word document consists of strings the string object has to be converted into array of bytes and then I send it through an output stream to my printer you’ve seen a fox scanner image scanners or you have mics through which you can talk to your application today in WhatsApp you can just speak and send the audio these are called as input devices scanner a keyboard a mic all of them are even a mouse for that matter they’re all input devices through which we receive data into mind software we would use a input stream to receive the data and here the data is going to be an arrays of bytes so you got to convert them into object converting object into an array of bytes is called as encoding the reverse is called as so you decoded and then convert it into an object and consume it data you would use input stream to send data you would use the output stream the problem and challenges that we face here is we have thousands and thousands of devices in the market which can be used as input devices and we also have different output devices different types of printers the data is sent to an Epson printer will not work on HP printers the data is sent to HP printer will not work on there are different types of printers and the data has to be sent to those respective printers in the format in which they will accept the data am I right that is why you have different device drivers you have for HP printers you have to install HP drivers for Epson printers you have to install Epson printer because they accept data in different formats it’s the same with your keyboard also certain keyboards your OS doesn’t recognize what do you do you need to search locate the driver and install it so that the mouse or the driver can be accepted even for your input and output devices like your speakers Bluetooth speakers sometimes they don’t function So what do you do you either update your drivers this is because different devices use different formats of data to accept and process it for input also the same output also the same as a programmer when I write application and I want to work with all devices I'm forced to understand those input devices and output devices so that my application can work this increases complexity software what would be the best approach as far as the developers concerned to me all output devices should be considered as one type of viewers I don’t have to bother about whether it is epsilon or HPP or cashier or X or Y company similarly to the I shouldn’t differentiate between a mic keyboard a mouse or a scanner to me all of them are input devices I should assume that the data coming from them will all be of the same format and the data sandwich should also be up one single format I would need not I should not be worried about transforming converting my data into the destinations format that complexity should be removed from the shoulders of the developer that responsibility has taken over the what the Clr clumsy was converting the data type that you give to me into the destination format is my job you don’t worry about that so you your destination is a class that I provide which is a single class called as output stream class you target that class I will give you one standard for set of libraries to use those are the destinations and source the input stream is your source I will communicate with these devices the input stream class that is provided by net will communicate as input devices in whatever format is and the data you take it and convert it into.net data types for you you’re guaranteed to get your data as a.net object not as the source database that conversion is taken care of by the Clr libraries that is why we are learning this topic for us we are not going to communicate directly with the destination devices we will talk to these libraries these libraries take care of transporting transporting the data converting it into the accepted format and get the job right this is the same done by Java also the input stream and output stream clauses in.net and Java they take away the extra burden for the developer and so that you can talk to the library the library will take care of the extra complexity that is involved in communicating with you so in future if new products come you know what can be the new product in the future just us today we are manually working with foods tomorrow and I’ve already seen a demo of these gestures it’s practical if you want certain things done just wave your hands and the computer will understand and start working on so if you want you right now through voice you can give comments correct or you can type in a CLI command line instructions if use the CLI type of command and if you go and read about streams it will come to a chapter of around 20-30 pages I picked up the most important points and put it in three or four slides please take them off your job there are two different ways in doing it tomorrow In future you just give justice and then your handshakes and emotions completely understand what you want things to be done and you work on that this is practically possible today have you seen the demo of gestures robotics robotics you just shake your hands and give instructions to the devices and if you or any from the second that’s it and you can see the small robot planes picking up and moving to a direction so you don’t need a handheld device down left and right and so these kind of technology is coming up it’s not too far away that will also be integrated into your software will my today’s software work with tomorrow’s technology yes that’s what these libraries are so if new concepts new features come into the industry the existing input output be ready to receive data from those devices also and provide output to those devices also so that’s why we are also future not just backward compatibility with past technology this these sets of liabilities will be ready to work with your unknown future technology so that’s a benefit of using things like lips the next four flights is a very fast car technology concept but I’ve taken the most important points about streams and I’ve listed it around 8 to 9 important points

So the common methods that is defined in the stream class is used by the children so I think the stream class is a great example for what is an abstract class how to use it or how to use abstract classes that is a real time implementation of abstraction there will not be any abstract methods in it strain class though it is marked as abstract you will not find abstract methods most of them would all be proper implemented methods and they do not want you to use it directly they want you to use those methods through its in this case the buffered stream 5 stream memory stream etc

Characters are strings and numbers and images how do I stream objects objects will have to be serialised and then serialised objects will have to be D serialised what is serialisation please say come next slide

`1q2aw3zse4xdr5cft6vgy7bhu8nji9mko0,lp-.;[=/’][\\]’]’/=[;.pl,0okm9ijn8uhb7ygv6tfc5rdx4esz3wa2q1`](file:///\\]’]’/=%5b;.pl,0okm9ijn8uhb7ygv6tfc5rdx4esz3wa2q1%60)

Day 10

And then we have the J Esar Prabhava RSJ Java requirements specifications and then we looked into how garbage collections and memory management is done by the runtime we looked at what is pipode and how it is a high level code and how it is used for both the code from one platform to platform so which means your low level decision friendly code is generated by the gesture time compiler which is part of your CLR virtualization and then we went into C Sharp as a language and we started off with data labs c Sharp data types are up to value types at Epsilon slides and we saw value types of few examples all the value types for example we started off with write and then we looked at scientified we looked at short glimpse long float and then character movie in and after working with Valette we also looked into enum and strings then we went torso reference steps in reference type classes interfaces delegates arrays they all come under reference type and I think they covered all of them we have to click to classes in creating classes and instructors attributes properties methods static methods nonstatic methods static fields nonstatic fields static field voting constants we looked into overwriting overloading polymorphic behavior we discussed keywords like C classes C in the methods static clauses static methods virtual methods are overwritable paradise non virtual methods can be inherited but may not be overwritten we looked into abstract methods abstract classes and abstract methods abstract classes must be inherited abstract methods must be overrated interfaces of pure abstractions everything inside an interface has to be abstracted that was technically take B day 4 string and string filter string filter with more sort of the same string has to be manipulated with multiple times strings that array of constant strings are loaded in a string interpolant special stage for strings there are no duplicate copies of the same string in the internal pool every time it is modified you end up dating a new stream but if you take a string with an existing data it stops reading a string orbit if you use a stack memory of its string strings are objects reference like so by default strings will be null and that is not a good thing so you have to initialize things with string dot empty strings have functions like substring split to upper two lower start and it goes on after that we looked into daytime we started working with differences between two tags as a time span time span time duration between two different things that is a time span that the unit of measure for representing two ratio so it will be 10:00 o’clock and 11:00 o’clock how do you measure that 16 minutes in as a time span that is a difference between two data time is a time span and we started working with Dave we saw that you can extract the year component month component and the day component from a date you can add seconds minutes hours days months weeks if you want to do any date you can also subtract and we tried out a couple of examples of finding out the age of a person as well as this retirement age we looked into exception handling what are exceptions when does it happen and what are the properties of exception for example an exception has a message which is read only by the date which means you cannot modify the error message once it is created but if you want to provide your own custom error message to an exception then what you need to do is through a constructor of an exception you can add the error message which means you cannot just say errors dot message equal to my error message that it can’t do but what you could do is if you create exception err or equal to new exception and to the constructor of that exception class you can pass it error message so that is the only way to add your own custom error message or exception exceptions any code that can go wrong will have to be put inside a tribe block a tribe can have either catch or finally it is not both are not compulsory you can have a try and catch you can have try and finally or you can just have try catch money all the three of them try catch can be tested trike can also be used inside a catch block or a primary block I am driving code to handle error but that code itself can throw exemption so what do I do with that so if you think the code inside a catch block is unstable then you probably need to put that piece of code inside a separate trigger you know it is OK to have a try catch inside a catch block so if that depends on how you write a code but if you think it has to be handled then you can put that code inside a cache block also exception system dot exception is a base class for all exceptions at net so that seems to be the base class so the rest of the exceptions inherit from system dot exception so by having system dot exception as your first catch and then follow the rest of the catch with the children what happens volume ofism takes over whenever exception of type null pointer is raised but the first catches system dot exception so all children is a system product exception a car is a vehicle so because system dot exception is the base class every other exception that is raised in your code can be caught by system dot exception so the remaining catch box that comes down is meaningless and useless hence it is recommended that system product exemption should be the last block to be caught and not the first exception to be rescued are we clear if at all you are going to have multiple catch blocks in your code the last catch block should be your system dot exception and the children so the reverse order of inner returns in that order you should have your cash blocks it is better to divide and rule catch different exceptions independently instead of having them under one cash call I remember giving you a homework about bill exceptions and when did you go through it if not you are not going to put in question so that is a question on that extensions and then after exception handling enough we discussed about Enum Enum is a collection of constants enum is a value type so it is loaded in a stack you can use enum instead of still enum is normally a substitute string how do you say that in case of data members like department city branch what happens is that only few values are acceptable my company has branch in Chennai in Pune Hyderabad Kangaroo there is just four states and maybe one or two places in us so which means that are totally six states from that the company address could be why would I have it as a string in string you would just simply write ABC Dx where there is some junk value and you become a valid data but instead if my branches enum you are forced to select from one of the available option movie rating you have to either rate it as bad very bad or average or good or excellent when I give you this 5 options and choose one among them you are forced to choose one of them and not enter some junk so enum at any given day is better than a stream when you are trying to enter data to a where the value has to be from a few options then you go for a enough enum has a name the members of the enum has a name and every name should have a version number please make sure versioning is included as part of it do not just give a pinch of constants assign a value to each of the name and you can use enum dot get name to pull that value as well as with help of the name you can also get the number that is assigned to that enum and then on Friday evening last week you are asked to go through the linkedin earnings almost from 3:00 o’clock the whole day was spent on that and we move on to the second week I had a modelling test on last Monday and that was the morning session and the afternoon session we started off with the reason and the next day we moved on to working with dictionaries key and valley patch and then generics we saw list assets and so on and on Wednesday we learned Lambda expressions and how lambda expression can be used they are very good so all the deals with coordinates since we also yeah stack can be generally coronavirus start by default is not generic non generic yeah but you do have a generic start also similarly with you the generic thing makes it tight tight safe strongly tightly tight so fact brings us to afternoon on Wednesday wherein we started out with threads started working on using threads parallel processing yesterday we started off with input output strings working with files object serialization deserialization and finally we entered the table tasks so today this is the plant Libraries assemblies and you get assemblies I think I have already discussed about it on day one when I introduce dot net I did explain water assemblies

I was created assembly and then deployed that’s innocent it is similar to a zip file assembly is similar to a zip file so if I can assemble I shouldn’t be able to disassemble recall that yes open run is it open now can you open the solution explorer can you see a project that can you right click on your project right click on your project I think that is 3rd or 4th option from the last is file in file explorer or show in file explorer something like that open folder in file explorer can you click it so it is open a folder for you the name of the folder in the name of a project is the same can you go into that folder this is your folder structure all your name spaces are here as subtitles the folders you created in your project you should be able to see it here the program is somewhere down at the end we can also see a folder a folder called Bing that is actually not shown in Visual Studio it is a hidden folder but you can see bin here can you open that can you go into debug next which means your project has been built forward to run on dot net 6 point X not on 7 this code may not announce I also this will probably definitely run on seven why backwards compatible future versions will support old versions but old versions may not support the future so An assembly is a synonym for zip file so what can be assembled can be discussable if I disseminable what will I see inside it definitely not C sharp why K-4 has been already converted into a neutral language the neutral language here is MSIL Microsoft Intermediary language so the code inside this exe would be in MSR format MSR is more like an assembly language it won’t be in C Sharp it will be in msn which is similar to bytecode in Java the MSNL code instructions is very similar to pipe code so if I open and extract the content inside this exe I will end up getting LS spines ill twice so you had program cs you will have a program dot IL I had a demo a cs you will have demo a dot ira every .cspira has been converted into one IL5 and that is all bundled together as a single file called as ex that is an assembly this is what an assembly is what is this assembly contain it has meta data about your application in Visual Studio can you please go to visual studio

Will have to be executed from another application She shall be tried to stay as classified till now Can I have your attention to the board topic for today now to create in class like this

You came up with that solution in your portfolio you probably spend one week on testing the port you deployed it but the word of mouth has to take time so it’s going to take 1 or two years to pick up catch up but two years down the line there’s going to be thousands of people using it millions of people using it you rich you can forget about it and how many dls did you write that’s what applications are you do not need to run a big organization you just come up with that one great product lot of people are making money out of Justice deals nothing else but dealers if they focus only on creating the events let me give you a couple of companies the focus is building realms and distributing the dll with software developers who can use it in their product like ap so this is serious business I am not joking with this boxer students I am going to finalize.com ELERL Keneric.com Telerik.com indeed.com https://www.infragistics.com/

Books

lean startup

You say you are connect to the url make a request get a response consumer so everybody is now gone into building Micro services but Micro services are also nothing but dll ‘s

And he what goes back let me discuss about damage collection deterministic and and we use here non deterministic collections objects are not removed from the heap immediately only if memory is required garbage collector will come in every management is C sharp itself is a past topic having a basic knowledge of that is essential but if you want to do a deep right on memory management which sometime in the future you must do that if not now 34 years down the line when you start bleeding your own peak you do not want to be a programmer forever 4 five years you will probably become a team lead that would lead pressures like you will human be managing them by the time you should know these information

Is the product cannot run on its own it has to be hosted on a website you take the dll put it in a web server and an asp dot net server will launch your website and run it so you’re going to build websites from now learn how to create websites using asp.net the basic language is going to be C sharp so C sharp is prerequisite for building asp.net you would need to know a little bit of html which I tried to go through but rather than html Microsoft users are language called Brazil razor is very similar to reactor where you write code using laser razor will convert it into html what react and angular will do is you write code in typescript and it will generate html css code in fact not even css because even in react and angular css and html you would have to write at least the css you will have to write html is picked up from the typescript and then it creates an html bundle and runs it on the browser trace that does the same thing so razor will be a bunch of html instructions you will learn to generate the ui part that the browser display view part but the rest of the logic will have to be in C Sharp c Sharp code will to see if your best request from the browser to a remote server and then what happens behind it that is all written in C Sharp what happens inside a browser has to be in html and css and javascript but we would use razor to generate the equivalent html css and Java sound we will be writing very less of javascript more of html and css asp .NET tries to do most of the work on the server side not on the client side but whereas react angular what they try to do is they try to create a single page application spl single page application and they do everything within the browser to perform this operation within the browser react an angular has a framework provides a virtual top which we call it as AV top it is a virtual dom and within that virtual dom all your page processing takes place so it does not go to the server to do most of the work everything is done within the browser itself when it comes to reactor angular but in this case there will be a round trip for every small operation from the browser you will end up coming to the server getting things done on the server and then going back to the browser so big difference between reactors and asp dot net so the html you don’t need to actually create html code razor will take care of auto generating in the browser you will not have a result in Visual Studio you will be writing razor code but when you view it on the page you will only have classical html and start from now building asp dot new page let us

Day 12

Object of this interface interfaces cannot be instantiated correct that is a class that implements the interface do we know that class name no we don’t know that who manages that class the container the cluster container in which application is run they manage this class so object of type I logger is instantiated internally by the container and it is passed to your controller through the constructor they will create the object and they will give it to us and our controller will use it it is externally controlled hence it is called as dependency injection or otherwise called as inversion of control ok so the container creates an object of logger provides it to your controller it is up to you to use it or not to use it it is not compulsive but if you want to log your content you need to use this object only that is decided by the container and it is injected to you’re application through the constructor hence we call this dependence injection and it is also marked as what we want so read only members can be only initialised through the constructions now you understand the impressions I gave you yesterday morning for static constants at read only and what is the difference between constants at read only read only so important please be aware so once instantiated this controller cannot recreate another logger it has to work only with this logger object and we do not know what is the class name we only understand the interface but not the it has a method called index and it also has a method called privacy and the 3rd method call error now what we see here is for each method that exists in my controller there seems to be a equivalent cs html file for index that seems to be a index or html file now if I have look at privacy I seem to have a privacy .cs html now only the error does not seem to be having an equivalent error .cs html but it is pointing to error view model so obviously I assume that it should be in such hat if we have it all error will redirect to the error .cs html that is inside it sends an error object that more about it we will discuss with later under model we have the error we model if you are wondering whether this class call error 3 model this error 3 model is found under small what is the model it is a class that is whose purpose is to contain data in this case if you contain error data exception object if you contain an exception object with message stack trace and other details this is purely for error family in the web environment the first method invoke will always be called as index the first page to load will be called as index .html and here the first method that will run automatically for your controller is called as index the moment you load index it returns an object whatever is written by the view method a view is a induced method for each controller it will return a cs html file the moment this new method is called what it does it will search for it will search for a html file by the name of the current method what is the name of the current method index so if you go to and what is the name of the current controller so what is this algorithm of view method view is a method notice the paraphrases there view is a method when this view method is executed what it does it cheques with the current controller name so it goes to the view folder and it cheques for home folder then it cheques with the current method name name of the method is index so under home it go cheque for a method called index.html file called index dot see what I am going to do is I am going to create a method called say hello instead of index we call it say hello I need a page an html page under I wait for a few seconds you can also do this public eye action result eye action result is a return time technically I action result represents a html object what is I action result it is a html output

Razor uses @\* … \*@ for comment

Razor always starts with @{ ….} block and after that comes html codes

OK right now we are just displayed static content on the screen we have not transferred data between the methods in the CS5 and the html in the view we have not done that we are going to do it very soon ah read it don’t take it down this is just reinforcing what I told you

Inside the controller call so you guys can have to add the two login methods at this method

Day 13

Insider database please be aware database is a software it consists of many objects the most important object that we are going to work with is a table what is the view view is a virtual representation of a table it can either represent the entire table you can create any number of views for a table you can horizontally or vertically philtre a table and represent it as a view a view is used to encapsulate the team we talked about encapsulation I don’t want the table to be visible to my users directly so what do I do I create a view the view will have a name so if you have a employee table I will have a view with a different name the name of the table and the name of the view need not be the same and I will only expose a view to the user will my view have data as a no the physical data exists only in the table so what will the view have it is technically a select statement when you execute a view you are actually internally executing a select statement fetching a cursor and your display you can have a select on the view also you technically performing a select statement on a cursor what is the cursor cursor is a temporary representation of rows and columns so it is a two dimensional array of course there is Z2 dimension array you have multiple rows columns is it physically stored anywhere no it is stored temporarily in memory it is kept in the cache I would like to introduce to you Microsoft Sql Server explains a fundamental things about Microsoft Sql Server before we move on with the selling statement table creation other things can you please first go to services

I recreate the table it was a mistake to delete the table so what do I do I recray the table and views that but what happens to the indexes and constraints and triggers that I created on the table it got deleted when you deleted the so they are strongly dependent on the table indexes constraints and triggers are strongly dependent on the table you drop the table these three objects will also be dropped the rest of them can continue to be in memory useless in a try to access them it will throw an invalid exception why because the underlying table that it is dependent on is true but the objects assume that and we come back to life it will be useful when you create a new table with the same name then they get attached back to the table and they start working you do not lose them now you understand what is a procedure a procedure make a function which does not return anything later on we will find we will have to find the differences between procedures and functions what does the procedure what is the function very important differentiation is very important when the user procedure when to use a function is something that we need to know functions are normally perform a task and return an output talk to you procedures will be a group of sequel statements to be done but does not return anything to you procedure cannot be called inside a selective select procedure in from table you cannot do that but I can use select function name from table that will work for example select sum of salary from employee what do you mean by sum up that’s a function some of the function which is total salary of all the employees and give the output to you so functions can be part of your query store procedures cannot be part of a query store functions can build and must return some value so it was just they do not they are like wide methods more about it later rooms you can define your own conditions like who can access my data who should not be accessing my data various things constraints are again limitations I want to say like city should be equal to Chennai Bangalore Pune and Hyderabad one of only these four wherever I would normally use the enum I can use a constraint salary should not be more than 1,00,000 but not less than 10,000 that’s again a constraint primary key is a constraint foreign key is a constraint unique is a constraint you saying value in this column should not be duplicate that is a constraint udd you said defined data you said define data

BPLTML Tcl Data Patrol language and we create users we said permissions grand privileges and revoke privileges bcl is to grant or revoke permissions in privileges to users to access or not to access the database or any other object can you invoke a procedure for that you need a permission how do I provide you give you the permission tcl is about providing or denying access that is dcr grand revoke grand and revoke bcl data yeah data control language grand and revoke ddl data definition language this is where the objects are created or destroyed creating a table creating a rule creating a stored procedure creating functions creating triggers creating views all of that is done throughout dbl data definition language the commands we use here or create drop alter create drop alter these form fall under ddl create drop alter alter is to modify tml insert update delete and sometimes select can you manipulate data with the select yes the answer is yes data manipulation is possible through select records can be inserted using select into statement so select can be used for adding records to a table not only fetching so today we also have data retrieval language do not just select status select from select into will insert records select from will fetch records that is called as data retrieval package select from does not manipulate data manipulate is done through insert update delete and select into we need to master all these you can skip dcl but at least ddl and dml is compulsory simple syntax for creating a table

CREATE TABLE table\_name

(

Column1 datatype[NULL|NOT NULL],

Column2 datatype[NULL|NOT NULL],

);

Day 15

Number of frozen the number of dp set is equal to the number of tables number of objects in the dp set is equal to the number of rows in the table db context max to the database db said Max to the table objects to the db set maps to the rows in the zip you got it so it is useful for the short amount of data no Sir for large data like so like for for example if the data is around 2GB 4GB like that time the soft the memory should hold this much of data in the memory heap like that much by default only based on what you require at low when I say it will have objects maximum number of objects it can have is 100 because there is only 100 rows but when I create a dp set the PP0 optics are loaded in dp set on demand lazy invocation it has a filter mechanism it can sort you can do everything like you do with listing what are the temperature relations not deliberating so you can go to nuget and install those three files how about you I am running it only two years

Nation does the concept in model hold what information does the storage model contain what do you mean by matching mapping of conception with storage how is it done what is the significance of this this is homework for you Monday morning you had to explain

DAY 16

Otherwise joint will not work there must be one column between those two tables that can be associated with each other and that can be 3 types of joints 1 to 11 to many and many to many a person can have only one passport and one other that is a one to one but you can have multiple qualifications 12 many a student can have many trainers teachers and a teacher can have many students so that’s many to many types of joints please take down inner joint left joint right joint

The last part of the book will con”ain indexes of index in this last page the answer is the couple index node certain words common table expression in booklet but strong and so on and I am giving you 10 minutes to do that 10,000 lines or 10,000 pages in the booklet you will not even know where it is but you will have to go find that page find the paragraph that I am referring to read it and come and I will give it 10 minutes the shortest way to do that is go to the last part of the page and that from alphabet A to Z it will be arranged like a dictionary so go to the C section and that will find common table expression and then number of pages in which the page numbers in which this word appears page number 9 come out page number 32, page number 18192 which means these are the pages in which this word appears so indexing is the shortest way to search and locate a particular data that is what indexing is we have a huge volume of content and you index it back based on keywords and you pick up and put it in a table separately given a word common let us say common is the word you are looking for so the entire 10,000 pages if you scan through and look up where all these words common comes in and take a list of that and provide it so you will know that common is available in page #10 and then 132 and then 1800 so in these different three pages it is formed like that for each word it will cheque and give you a list of pages in which this particular data can be found this process of creating is what we call as a syntax if a table has a primary key the index is by default created for the private key and it is maintained in a separate table it is actually maintained in a separate 3 column beat finally primary key a table if it has a primary key it is by default index on that key and it is maintained In a final iteration in addition to the primary key you can have additional indexes may be based on city may be based on department and salary and whatever you think is important whichever column comes frequently in a back class the column that is frequently used as part of the back class it is better to make it as a index vertex vertex unique columns are not by default index I mean this could be a question differences between primary key and unique key a table can have how many primary keys only one how many unique keys can I have a null value in a primary key how about a unity yes but only one yeah only one in that column like that by default unique keys are not indexed but primary keys by default but you can create an index based on unique key you want to keep ok that is all possible but what we need to know is how is that index created what is the structure mean I just told you it is the diameter 3 that is the data structure how does it work is it a static tree or the tree will keep changing the tree will keep changing as the more and more records are added to the table the tree will have to be a motion suppose in my book I said I have around 10,000 pages but word starting with AI have only 12 words ok so what will be the size of my index for a only 12 lines 12 lines with each word appearing whichever page now I come and add another 300 pages where the word a appears at least 400 times in various ways now what is length of my index a earlier on that only ten now 410 so that index for a will have to be changed what happened to BB will probably go to the next page so index will keep on rearranging itself as more and more records are added to the table so index is not something that is fixed index is a tree structure which means there will be a root how many days draw a tree if you have to draw a tree I mean a physical tree that you see outside of the road is there a top roots you are drawing his hand I am asking you to draw a tree and he is drawing your hair branches in India straight legs So you will have a one root and it will have multiple and then each branch will be a node and each node can have further 2 branches and so on and so on until it goes to the leaf the leaf is set up notes which does not have any children we call them as leaf nodes so from root to leaf in between you have various root branches all growing downwards not the upwards like strange inwards strange words I got it right stranger things and everything is undergoing stranger things see I am on two types of sexes marathon indexes and not clustered index a table can have only one clustered index if a table has a primary key the clustered index is based on the primary key a table without a primary key does not have any index unless otherwise you explicitly create a non clustered index I can create a non clustered index on a table if it doesn’t have a primary two 150 indexes can be there in a table where one is clustered index remaining 249 are non clustered Sunil Bhavya Sunil

Dropping a table what is the difference between a drop and truncate what do you do the table will be there in the paper only the data the table structure will still be there what is the difference between truncate and delete from the condition you can give a back class so you don’t have to delete all the rows and columns you can be selective on which rows to be deleted but whereas truncate will remove all the records and drop will remove the table and total select statement different types of select statements I have given you at least 64 different select statements and with that class order by group by sub queries joints transactions and today indexing so with this we have more we just scratch the top of sql server you need to learn what are stored procedures functions different between stored that’s you will have to learn not part of the syllabus it’s not there in the server so I am skipping but stored procedures functions because of cursors common table expressions cte temp table global table views views yes views what we have done is variable declared so like once a view is created it can be deleted like it is a temporary or like permanent yeah those are topics higher income they are not advanced they are intermediate and advanced but you need to learn them be ready before you go to the job if the topic that I told you to charge I will send it later

Day 18

We were using console application where middleware does not exist which means connexion pool does not exist only in asp dot net we have clustered the clustered middleware provides you the service called as connexion only so correction cooling service is provided by the middle work container it is not something that is available on a normal dot net environment so in this container 10 connexions are already there on demand connexion is created in given to you you finish your operation return it back to the container and that same connexion can be recycled to another person it starts with 10 corrections it can grow up to 100 but nobody will buy 100 nobody will spend so much unconnected so probably I left by another 10 or 20 if you start with 10 connexions and that is good enough for thousands of people to use is it straight maximum time a connexion is used by a person is hardly few seconds maximum 20 seconds this is the time the connexion is given to you your select is executed you got the result your connexion is written back to the connexion pool so that I can give it back to another user so each user probably will use a connexion for 20 seconds maximum not more than that so again recycle the same connexion to multiple user 10 connexion very abnormally it is quite possible the ten connexions are pc and 11% comes in and he wants a connexion the 11th person is never put in a queue the 11th person is never made to wait in a timeout. As soon as 11th percent comes and makes a request if you have sufficient licence you have paid for reception licence immediately 11th connexion is paid ok 11th so you had already 10 but now 11 and then the 12th person comes the number of connexions or connexions can expand up to say 20 because I have paid only for now 20 is we are over with the peak time usage now the number of users that come down and out of the twenty connexions around only five or six are busy remaining 15 corrections hot and used to inside the connexion pool there is a connexion pool manager it keeps monitoring the number of free connexions and what is the normal default number of connexions in the connexion code so now we have 20 it has to be reduced to 1010 so the ten connexions extra connexions that is already now created will all be closed and it will be reduced back to so it will expand and then it is all be done inside a connexion pool that is done right now in the background so when you venture context context it has a connexion behind the screen the connexion to a context is provided from the connexion code can you just go to Google and search for sql connexion sql connexion must mean topic

Day 22

Different areas and they Will also be taken it is very interesting to see how data bases are distributed across various organisations state Bank of India has more than 360 patches automated all over the country and they are all linked with each other that is why that is why core banking is possible from anywhere any place now the point here is your data is not available in the local branch so you click a button it’s going to take at least 2 to 3 minutes let me tell you in 2005 have you heard about a bank called Dehradun so I had my account in Pune then I bank but I had come to Chennai and T Nagar I wanted to withdraw money from my atm I have to go there early morning 5 O clock otherwise it will not work so go at five O clock if I go at 10:00 o’clock in the morning if I enter my pin number it takes 45 minutes for the response to come on the screen because to authenticate and authorise my account information it has to go from Chennai all the way to Maharashtra and get back the data how that pathetic it was so for my full transaction to get over to withdraw money it easily used to take 1 and half hours to 2 hours and then it does not have branches in Chennai just one or two branches in that way they had a atm so if you go at morning 5 O clock there will be no rush and the servers will be free so I can probably finish my entire operation 20 minutes today you are able to withdraw from atm in a matter of seconds four to five minutes I mean maximum that is all it takes I mean there are these four screens you have to enter data you cannot do that in 2 seconds right those are like complete transaction which they are together and then the type of transaction you want to do enter amount and then finish the whole operation that should take at least 4 to 5 minutes like I thought of the UPA like four seconds it used to take us morning five O clock if I go it takes 20 minutes if I go later in the day easily modify to one hour that is used to be there and most of that it will fail if there to make a request across the Internet to a remote server some thousands of kilometres away thus take back today thankfully the network is pretty faster and you have much more performance finance features available do I have to imagine you are the second person behind in the counter and someone else in front of you is from a different home branch he is not for the current branch he is from a different home branch and he is standing there until his operations are over the club is not going to attend to you this is synchronised communication track his job is finished he goes then you come and attend that is one option which means you are going to wait for 30 minutes to 40 minutes for the job to be open or it kept that can make a request request from his machine has been sent to the remote server it is going to take 30 minutes to come back but the machine here this person is using should be free I can give that customer a token and say please go and sit as soon as we get the data about you we will call you a token number you can come back so he is going to be waiting there meanwhile I can continue with the next customer can I do that this is called as asynchronized communication started task it is not completed but it is taking time what do you do put the task in a queue then you call the second right put him in a queue sadhguru after that rain 626429131023452080288520 two 0 two 0845820 two 36 two zero six two 025 two zero six 0 one two 5 two 0 But I’m not waiting on it I’m just gonna keep on calling functions put them in a tray and I’ll wait them for two notify javascript even look make a note of it later on when you learn javascript it’s very interesting to learn event loops

Came up with a new tool internally two is called as V8 V8 engine yes search for V8 engine 8 inches it is a render engine right now 2000 and 18 is a software that runs on the server side on the web api site create engine is a software that runs on the web api site not on the client side it runs on the server side all your request goes to V 8 engine only and it handles a request it is AV8 engine that provides a response it is a single threaded model Indians and millions of people make request on a Google server one thread on the Google server receiving and handling all your requests imagine its efficiency it does not wait on you it takes a request we will hand it over to somebody else and move on to the next person have you ever gone to a sweet shop on Diwali and purchased sweets from grand sweets or anyone have you ever done that just on the day of Diwali or one day before never look at the crowd there there will be one guy who will be taking your order slip it’s all go pay get the token and then go to this guy there is only one day there he will pick keep on taking your tokens right pick up your tokens and Justice turn around and that will be the another team of people just take the order packet then seal it and then they will push it on to the value mixture counter one guy will take your bills tokens and the bills and then we just turn around and place it in a tray or you just pin it some and then we team of people whose job is just to read what is that packet put it in a box back in and push it to the outbreak and will be there in the outbreak this guy who is picking up slips from you will have to now go to the outreach call out your token number and Justice hand it over to you so I have taken the slip from him I hand it over to somebody else they will pack it so I keep on getting some 2030 slips from this group I put it in a tray the order in which the output is given is not definite necessarily the order in which I picked up the tokens so they have packed it they put it back so there is one cube which has the orders I take your bills I put it in a queue that is Q1 which is all tasked to be completed is that right then there is a team of people working on it I am not working on it I am not responsible for the final outcome my job is only to take input from you and put it in a queue then there is a team that is working on it so each person go there pull out one request up to the other and start packing it and once you have finished the packing what do they do put it in a delivery queue that is the 2nd queue here is one queue that is receiving an input that is another queue that gives you the output now what I need to do is just pick up whatever is available in the tube and hand it over I do not have to wait on you you do not have to wait on me you are free you gave me the slip or you are free go do whatever you want to until your name is called as soon as the response is ready for you it will be picked up at handed over to you read the event loop this is exactly what happens if you try to remember this example and then understand read the event loop this is how it is designed even B8 is based on this I mean with one single thread one object 1THREAD or the server it manages millions of requests and very efficient and this is the fastest way to provide response

Once you come from the api you make a call asynchronously this class here this function here returns a task which means you can invoke it asynchronous here is the logic give me a second Sari Tera Khan Shetty 2000 and 19 go ahead you can take this downx