STD Session 7 (1)

**Karthik C:** [00:00:00] In time, right, I will start with batch by batch. Right? So we'll go one by one. All of you have to respond with your names. Right? Reviewed? Reviewed by TAs or me? I reviewed. Okay.

No. What is their, bro? I want it to be guys. Listen, what I'm going to do, I'm gonna take each product statement, so I'm going to discuss, so all of you can. Benefit. I sit in the front, don't go to the two hours, come to the front,

you know? [00:01:00] Okay, what are your domain? I'll make sure today we freeze, right? It's already, I'm running two classes late. Okay, if I have to follow the schedule, I should have finished, right? Eighth lecture today. Right, I've only completed six. Okay, so I may have to skip one class actually. Yeah, one of See,

it's a good.

I don't.[00:02:00]

Right. Often, right, for serious graduate, right, my suggestion is, if you are picking a hardware, well and good. But, right, what they are saying is we want to work on a bike stand. We want to work on, right, some solution to some insects, right, that they come in during rain. These sort of problems, right, generally will need some sort of mechanical solution, [00:03:00] yes or no?

Correct. It will need a mechanical solution. It is okay. You can work on it. The problem is, you have to build your profile relevant to your area of study. Correct? This is your third semester, you will go for smart product design. Right? Then again you will do entrepreneurship. Then you will come, finally again you will come back, Right?

Sixth semester. Prototype again testing. Then if you bring this, bring this in for four semesters, you are stuck with the same thing. Tomorrow when you go for placements, right? When you put this right, it doesn't really look relevant to what your area of study, right? So those things, right? You still have trouble, right?

Fuel mechanical problem. That doesn't use any data structures, like anything from your core area of study, right? Little bit of programming. Somewhere you bring it, which means some data you need to have other can be there. I will give you an example. There is another team, right, they want to work on a blood glucometer, ok, which is a hardware product, [00:04:00] right.

If you take a glucometer, that is going to sample what is your glucose level over a period of time, yes or no? Now for a CS engineer, what is of interest? Can somebody tell me? Usual levels, comparing it with usual levels. Right. So it is data, right. Every second I am getting a data point. So, I can actually look at the day of, time of the day, what did I eat.

So, that now ties up into your goal area of study. So, that's more relevant, even though it's a hardware, it's a medical device. Because, I'm using a medical device and I'm collecting data. So, my stand, okay. Is there an opportunity to gather data? Can you pivot? When I said pivot, okay. Now you look at, okay. So, let us say you go to Vandalur, okay.

I will just pivot, okay, your problem. If you go to Vandalur railway station, if I go there, I have to park. It will be chaos if you just go there. It will be complete chaos, right? Everybody will try to enter, right? They will have, uh, some sort of a system they have. You have to enter through this way, come out the other way.

You have to [00:05:00] park in this place. If you look at it from a pure data problem, where, uh, what are the types of vehicles that are going, right? What is the average time of the bike that stays there, right? What is my average capacity utilization rates, right? Now, don't force AML into this, ok. Go step by step, first level, ok, which is pure statistics, right?

I have some sort of a look up table. Time of the day, how many vehicles are entering, type of vehicles, type of demographic, who is coming, 40 year old guy is coming, 70 year old guy is coming. Ok. Right, now when I look at that, right, now if I look at it from a pure data problem, same thing, right, is there a opportunity for innovation?

Can I provide a better service? That's the question I'll ask. For the guy running it, what does he want? Labour reduction? I want minimal number of people to be employed to run that show. What and all that can be automated, right? Any software tools I can leverage? What sort of data can I collect? Certain things you need [00:06:00] people.

You cannot automate everything. But, certain things like today if you go to a mall, right? You go in, there's a fast tag, it scans your number plate. You go in, you come out. I don't even know. Right? I get a message saying, 100 rupees is deducted from your fast tag number. Right? So there's only for 4 stocks, there's only one guy sitting there.

Got it? So what is he doing? He's just seeing if the system is working. That's it. Right? Automatically my number plate is captured. Right? It recognizes, it puts, puts in a timestamp, right, I put my car, park my car in the parking for, I do not know, 2 3 hours, right, then when I exit, my FAST tag is linked, there is again a RF antenna that picks up, right, and it is detected.

Now this is a opportunity for labor reduction, yes or no? Right? So you look at, when you pick products like this, again you say insects. Now again, can you look at it again from a data point of view? Can you look at, again? This, Here, hostel, if you go, you get all these flies, right? That bite, lot of complaints we get.

That firefly, what is it [00:07:00] called? Acid fly, right? It causes scarring and all that. They spray chemicals, right? Now, if you, if you do that, right, now they have actually increased the frequency. Every week they are trying to spray. But if you put too much also, it is toxic for humans also. If it is killing an insect, it will also harm you, on some level, right?

So, again, if you look at that, What is the solution that is there that will tell me optimal spraying, where should I spray, how much should I spray, what is the, again data problem, right? Again, even taking data because you can correlate, that's why I'm taking that as an example, got it? Right, now can you pivot based on the inputs I gave?

Will you be able to like, don't be pure, right? They are like, okay, let us improve the stand for what easy, uh, right? What is your original product statement? Uh, so this, what do you want to do? Change the design of that? Right? That's an electro mechanical problem. Do you really want to do that? See, if it's an electrical engineer or [00:08:00] if it's a mechanical or a smart manufacturer, I would have said okay.

But for you, how is it beneficial doing this? Rather in the input end, if you go. Guys, why? Right,

so, so guys listen, what she is talking about is a pure mechanical design of a sidestand, right. She is saying people forget to put the sidestand. Right, or they forget to unfold it. So most vehicles will give you, right, 15 year old bag if you, uh, It'll actually, when you put the keys, it'll be a light, and you'll hear a sound actually.

So you need to, uh, lock it. And give the vehicle audible noise, me, it'll give. So you have to hold it. Again, now if you look at the info tape, Guys listen, So, this, if you ask me, all of you have seen this Aether, Ola, the bike, this thing you have seen. [00:09:00] What is the problem with that? Inlet stat, right? Right? No, I am not, I am talking about the infotainment, right?

Navigation. Look at, look at it from the navigation standpoint. Right? Now, how many of you are interested in UI, UX? User interface. Right? How many of you have heard this term? Use your experience. How many of you are, say, the simplest version? Right? Some of you are right, a few of you are interested. Now if you look at this, okay I'll give you an example.

Right? So last week itself I showed an example. Right? You will read this first. Did I show you that? Then you'll read this. Remember? Now, there is lot of data it is showing at any given time. What is the average speed of the vehicle? What is the fuel consumption? Right. How far should I go? Where, where should I take left?

Can I redesign this interface such that my eyes are on the road? It should not be on this. With minimal additional of cost or with no additional cost. Which means I have to really study what is there. Right. Something like that will [00:10:00] benefit me. Right. Or what data to show. Right. Right. Should I always, uh, display the instant ideas, mileage?

How will it, how will it benefit my user? Right? Which means that is where I'm saying you have to explore or talk and really understand right. Of infotainment system so that the user is minimally distracted, right? Because what happens sometimes, right? The problem I often faces, right? I'll be going, there'll be a flyover and there'll be a road there right next to it.

Take this road it. If it's a UNFI place, right? I'll be here. And then suddenly. Show an A this, right? Sometimes you miss and then you have to go, right, take a long round and come back. Can that be avoided by changing the interface, doing whatever, right? That's the area where that's a, that's a problem with the map.

Google Map has the problem, you understand? So you please look at problems, right? Specifically, right. I'm canceling this class recently called the speakers that at least we can just give some sort of a nudge to your [00:11:00] thinking pattern, right? Those are nice problems. For mechanical areas graduate. Not so, can you go back ID at the end of the class, right.

What if it doesn't work this way? This guy also doesn't work this way. Yeah, we're in this together so far. No! You know where he gets his points? Everyone has at least one TV point. You know my brother was posting, he was posting, he was asking, how much do you want, do you want to give me? And then he started jumping.

He grows old, grown up with a beard. But then I go do this, not, not my younger brother, my cousin brother, my younger brother outside. Yeah, yeah. 16 years.[00:12:00]

She shares it daily. It looks like an green. Look at you. Ali. Look at me. You have. You have, but more than Ali. No. Yeah, yeah. Okay.

Idiot

man. Is Hitler. I think it's safe if you want to take a picture. No. But then it's visible, no? It's all that I want. Bro, don't grow back, man. Why does it not grow back? How do you shave? You shave every, like, every You have to push it a lot. Trim. Shave? No, no, no, no. Trim it a bit. I heard you say it. I heard it once and I asked you to say [00:13:00] it.

Bro, my father is 52 years old. Your father is younger. You should say it. He looks like he's in his 30s. He doesn't have white hair or black hair. Okay.

Oh, it's. Ah, I get it. It's just a fluff. Yeah, yeah, yeah. It's just one flab. But it's not a huge issue. You are like the healthiest person I've ever met. Full diet. No, man. We never thought this was a big issue when we were at the hospital.[00:14:00]

I'm telling you no. I'm telling you, you know, I ordered it. During exam time, I would have eaten it three times. In the same week. Lulu, uh? I think, the set, the set totally costs you three hundred. Hey, what? You also spend the money. Dosa for three hundred is not good. Dosa, I don't have money, but I'm going to sell it.

This cast.[00:15:00]

No, it's too overpriced. No, too overpriced. Too overpriced. They, he give nothing in hand, no or nothing. No. This is all road

outta context.

What's your business? Hey, we want it on. Hey, we want it on, sir. No, I don't think I can do it. Didn't come for the fine. Oh, you went to play volleyball?

Yeah. 50.

Amazing. It's good weather [00:16:00] on, okay. You go out, you go drink the shake and come. You feel full. I'm actually not sleepy. I feel sleepy. Nine o'clock? Yeah. Yeah. Yeah, like, very nice. Yeah, two minutes will do. Hey, try Manila milkshake the next time you go there. Yeah. Amazing. Yeah, yeah. I tried everything. Where?

Vanilla is the best. Where? Okay, the others are also good. Where? But then you get them everywhere. Where? Vanilla has some I don't know man. Very good taste. Where, where? Roseville, Rajasthan. Outside campus? Yeah, outside. What, I'll hit you, we went. That one only? No, next to the food zone, very close to the food zone.

Oh, that one only. My parents are still here, [00:17:00] my mother is still there. Which means still, it's very close. The one which he went on, you know. This guy also came with us. This guy, I don't know him. Oh, he was the only one who didn't come. Who? What went on? Did Sai Teh Sundar come? Sai Teh Sundar? Only once. Huh?

Only once. Huh? Only once. Did Sai Teh Sundar come with him? Yeah. One was for meeting the chaiwala. He didn't come, he didn't come. Sai Teh Sundar came with him. They both didn't come. One was for meeting the chaiwala. One was for getting part of the scene. On the day that they went to food zone. The day I came on.

Okay. Okay.

You know how.

I got B. You got A. You got B. I got B. I got B. I got B. I got B in both times. I got A in the first time, [00:18:00] B in the second time. What do you mean B? What do you mean how? Why did you get B? I don't know. I thought I got A then. You got B. You got B. Probably. Probably. But then I did switch them all down. I got B. I got B.

They don't want you to

remember. I even know the, what is that? Are you, your, the

got

there, there's a term for what? The, the, the, the two terms. What is the difference between the two terms? What, what exactly? I'm talking about inferable,

what is it? D 1000.[00:19:00]

Why is there a different, why is your people left on This is our subgroup.

I think it's the name

mediator.

Bro, mediated and intermediary. Mediated and intermediary. It was an English exam. It was an English exam. Bro, damn, this sticker, I forgot about this. I forgot this sticker existed. Oh, I forgot this existed. Yeah, we'll see if it came out. Yeah, it [00:20:00] wouldn't come through.

Why do I look so young? Huh? Look at the side. That's because your hair is this. Now what happened to them, no? This car or that car? So after, uh, this lab, we have to go there and get the transcript. There's a wall in the middle of the lab. I was here spectating. They went with a small assembly of people. One came in, they were there.

And then they passed. And then they left. They come to the lab. Maybe nothing ever happened. Maybe they just left. Maybe they didn't do anything. I was taking my bag from the back of the [00:21:00] room. What? Five zero nine. Five one five. Okay, five one five. So, you took your bags from there. Okay, the pillar. Behind the pillar.

Bro, they couldn't have done it. Because that's it. I know they just stopped me. But yeah, it was like, I knew something was going to happen when they both were going in one direction. Clashed! I was like, okay, well, uh, Either they're going to ignore and then Priyanka will be so devastated. Or Yeah, I mean, I guess Priyanka will start apologizing.

Either R or C. Or R, he would have been like, I am so disappointed.

What? I just, I just realized it. [00:22:00] What happened? Why is Patrick are not, why trying, wait. Why are they standing?

Because it's AI data,

it's not good people. That's what exactly what he said.

Okay. Okay. Okay.[00:23:00]

No, I'm actually very, I'm very sensitive. Okay. Please. I don't know why I am doing this, but uh, 'cause your brain is telling you is not, actually, it's not, is it socially conditioning? Or this by birth. Are you sure?

How do you think some people not? 'cause they have not been, they've not been across it.

They, they so used to it that they don't,

I can control if I want to, but I don't want for some reason. He's like a pookie for us. What do you [00:24:00] mean by pookie? What the hell are you? I don't know. He's texting someone over here. Yeah, someone is texting. I don't know how. Swipe. Swipe. Swiping is not very accurate. It is. Not very accurate. It's like you're annoying.

You get it wrong if you ask questions. I'll tell you why. Even when he asks two hands free, he'll let you know. Convenience. No, it won't. It won't give you a cut.

One, one word from, yeah.

Okay. Tell me another.[00:25:00]

Pookie is not. God, God, that's all. God, God. And we text like this only, we text in slang. Who texts so? No, pookie is not an autosaved word, that's why. Okay. Kooky. Okay, I'm a bee at your house at 11. I'm a also is not. I'm a also is not an autosaved word. Say it for me, I guess. Ah, say I'm a. Oh, you're texting me on Instagram?

Who else? Baru, Milka. Milka? Oh, to play a dick game. I got scared for a second. What is hot milk? For me it's a, um, Umar. Who is Umar from? I'll tell you, I'm a girlfriend. Umar. Anyway, I'll text you. [00:26:00] Mess. Mess. I, I did it with one hand, okay? You're doing it with two hands. I'm not using this hand. Still he is not able to.

It's a skill issue, man. Okay, let's see. Two times faster with one hand and two times faster with two hands. Okay, tell us, tell us, tell us. You want just fingering. You increase brightness and no one's gonna see. Can you stay up all night? Hey, tell da, ok, 3, 2, 1. What? 3, 2, 1. Can you stay up all night? Wait, wait, wait.

Wait, Bhadresh, no, one second, wait. On Bhadresh chat. Bro, bro, bro, what, what are you guys texting me? My mother will see the chat. Ok, she won't see it. Ok. She won't, she won't, she won't. No, bro. She doesn't, she doesn't text all night. Is it joking? Some people's mothers text all night. Give the count. Like 8, 12, 13.

Give the 3, 2, 1. What should I say? Can you stay up all night? Ok. Is it recording? Yeah.[00:27:00]

what should I forward about that? Can you still apologize? Why? Is it still recording? Yes, it is. Okay. Three then be fine. 2, 1, 0. Fuck. Yeah. He sent it to me, bro. I didn't send. He's given whatever he wants. Oh, my data is on. Oh, you want my data as well. Okay, bro, next. And he said cab. Yeah, it's a good idea.

Aditya is correct. But then you are faster. Tell. Tell, tell, next sentence. What, what, uh Touch me till the end. That's fucked. What is it? It's a Adhiyana Grande song, bro. It's 3435. Yeah, 3435. In the next, in the next line in that song. Next line in that song. What is the exact, what is the exact sentence, what is the exact sentence?

Cut me till the daylight. Okay. 3, 2, 1, [00:28:00] 0. Daughter gives him daylight.

See, it's so unreliable. If I send this to someone, you know, I Okay, actually both ways are wrong. Wait till the doctor arrives. Wait till the doctor arrives. He comes. What? Wait till the doctor comes. That doesn't even make sense. Man's break now. That's okay. No, you don't know. You don't have The daughter is 18 minus rating.

Plus

probably.

Okay.[00:29:00]

Uh, how is it so hard to, I am speed. Your innovation is, you know, innovate something. Innovate something. We both got B man, you should man, you should be going. Just support. Uh, I got into Segmentation 5. 3, 2, 1, 0. Fine guys, I'm also joining. I'm bored. You are the person we are sending the message to. I will send it to Freesa.

Let's create a group, wait. Let's create a group. Group? No, no, no, no, group. Go to the old design group. Okay, design group. Old design group. Old design group, DS. Who cares?

DS is not there. So yes. D It's not, not disturb DS two thousands, D or Ds. That's it. Only who was there that I actually got Ds 2000. [00:30:00] Go. Ds. Ds. But then 11. See who must not be named there. Oh. I mean, I don't care. Do you care? Okay, I will. I will type it to . Tell a, A one group DS 2000. Will do company DS two, 2002.

The main one. The main one. Ds

still this hard group now? Yeah, group now all here. Okay.

Okay. What is the thing? So give us a sentence. You'll see who type the password. Yeah, but it depends on data suite. Yeah. But, but doesn't matter. You take your hands off the phone. That is when you

what? Drive,

whatever you're comfortable. Yeah, okay. I am cheating. Do not move the furniture. What? Do not move the [00:31:00] furniture. Do not move the furniture. Do not move the chair. Do not move the chair. Do not move the table. Tell one sentence. Do not move the furniture. Okay, do not move the furniture. And it should be, spelling should be exactly correct, then only then it's fine.

Fine, fine, do not move the furniture. Do not move the furniture. Here is the count. On go, okay, on go. Three, two, done. Look, mine is so small.

Like my net network net, not net footage bad. Not is good.

Yeah. I don't like what it comes. Next, next, next. Next.

What shit is he going to give now? It's actually really early, it's going to be a hard sentence.[00:32:00]

Eh, tell some sentence now. Eh, what?

I love football, thank you. I love football, thank you bro, come on. Made you angry. I love football, thank you. Yeah. Okay, okay. Fine. 3, 2, 1, go. Bro, net is not there. I can't help it. Yes! Okay, I didn't put comma on there. It's not correct. Hey, what? Space after comma. Space before comma, no. I [00:33:00] said, for that. I said, for that.

See, I don't get it. Shut up. I sent it first. I sent, look, I sent it first. No. Listen, see here. What? My net was not there. My net was off. I mean,

what? What? It's me, but not you. It's you, but not you. Okay.

Sent.

All this is not, not me, bro. Well, last one is me. Yeah, not you. Okay. All is not error. Error,

automatic. Okay.[00:34:00]

What? You know the LP right now, you have to make another one. Tell da, Bharat. I did a video for you. I did a video for you. I did a video for you. I did a video for you. I did a video for you. Actually, yeah, yeah. I did a video for you.

What challenge of committee

commensurability.

What, what is the word? Challenge of integrating what? What challenge of,[00:35:00]

they were trying to tie, they were trying to tie their shoes. They were trying to tie their shoes.

Then what is internet? Minus internet. Minus internet. I

You are, you are gone. I came first. I came first.

What do you mean? Mine is coming. We need same in here. I'm using AAADM. Sorry, Hacker. Who is Hawker? Anurag. Anurag? [00:36:00] No, Hacker. Hector's on the way. He's bored he's Lost a mother in unison. I want the Cadill. Yeah. He knows. So it's safe to say I don't. He wants to take the exam. He's took the exam. He's in the classroom.

It's better than only driving driving a car on the highway. Oh.

Your current? I don't have part information. Yeah. Yeah. How is it leaking? Have you told her everything? I told her long back. What did you tell her long back? Talking about his currents and his eggs. If his current knows about [00:37:00] the information about his eggs. Not eggs. Past data. What? Past data. Why not? Why not?

Almost no one is safe from neckless kicks. I don't know. You don't work in the hospital? Hmm? I don't work.

Mine seven.

You, you know, the snow, whatever happens. Yeah. Scam. Scam. Actually, yes. Why the fuck would you do that? I have no clue. What did they mix? Animal or something, no? [00:38:00] Beef. No, beef. The oil that they Used for beef or something, I don't know. Palm oil, basically. What is wrong in the oil? Palm oil, no. They didn't put beef, no?

No, bro, I think they put the oil that was used for making beef. What is wrong in that? The same oil! It's not like they used that oil and then put it, no? Yes, that's what they did, I guess. Yes. But, almost no outside food. Eggless cake. Worst case, only pure veg food. Searches for green simple in toothpaste.

Tirupati. No, but there is a green simple in toothpaste. What works faster than a calculator? Calculow. This dinosaur is so cute. I add jokes. I make better jokes, honestly. Adding superstar lyrics is such an insecure way. People thanking me for keeping their [00:39:00] cigars. Me who has shorter memories. I've seen that meme so many times.

Hey, it's me. Posting a song, eh? Bro, what the fuck? So cringe. In notes and all, they put. I will show you, see. Bro, they're so clear, bro, where they put it. What the fuck? It's like they want people to know their mental state. Men are not like that. Time flies. He has flies. Huh? He has flies. He's going to start his new life.

Bro, last year Bharat had some Pawan Kalyan. Pawan Kalyan. You had some line, no? Which you used to repeat. And then this guy used to go mad. Fahad Fossil da. Fahad Fossil. Prashant Neel. Prashant Neel. Ha ha ha. I [00:40:00] don't know. Syringing. Bro. Samutra Kanni. Kanni means man. Samutra Kanni what do I know? I don't know either.

Yeah. What is Duggoo? Coffee. I'm asking. Chris Evans. They would have told that. Kisan. Kisan, Kisan. Dulquer Salmon.

60 54.

We played after the whole game.

Can you? Yeah.[00:41:00]

I can't, I can't say it.

I got them.

Do you think of any related?

No. Actually.

I got the moo, moo, mooo, smooth like jaggery Listen, donkey Wait, it's already a donkey. No, that's a zebra. Oh, it's a zebra. Oh, damn! Lotus, root, and one. [00:42:00] Note the point of the ring. But it does look like a donkey, don't. It looks like a horse also. Oh, wait. Internet is not there. That's right. See you, bro. See you, leave.

Arun. Arun. Has flies. Yes.

How are you getting that

now? Actually [00:43:00] what?

You are looking at from a wrong perspective. I will give an example. Right? I have not named the team. First team, they said, Sir, we want to work on, right? We want to work on nothing. You criticize the particular man. If I am in your age, I will do the same mistake. Right? Wrong in what they are saying, I am saying.

Just shift your thought pattern. Generally, when you talk about waste management, right, you should attack the problem at the source. What do I mean by attacking the problem at the source? I should do whatever possible to not generate waste in the first place, correct or not? That is first thing, right.

Second thing is, once a waste is created, right, it ends up in a dustbin and finally it goes to a landfill or incinerator or whatever. Now, what Saj and one student made is that we will keep all CCTVs. So, CCTVs are constantly looking at everything.

The problem is, ok, if [00:44:00] you want, in a place like Singapore, in a place like, let us say Germany, where the standard of living is very high, right, I can spend the money to put something like this, where I can spend resources, energy to do this. Let us say there is one runoff garbage or whatever source, ok. But the fundamental, what is the fundamental problem?

Lack of civic sense, correct? It is like, how can I even address the problem this way? I do not have enough collection, right? Hardly once a day they will come, the garbage truck will come, collect and go, correct? Just what is the point of telling the municipality, there is a garbage pile here, right? Real time, yes you can give real time update, you can connect to IOT, all that yes, looks fancy, sounds nice, but the problem is you are not actually attacking the problem.

Right. Rather, right, uh, what Sajna was giving to this team is, right, if you look at it in a different way, look at the problem in a different way. This is waste. When will this be a waste? Everything I am using is a waste. My shoe, shirt, pant, [00:45:00] this, uh, mic. In fact, the furniture you are sitting on, everything will end up in garbage some day, right.

So what is the primary intent? To use it as long as possible. That everybody agrees. I gave a very little bit controversial idea to this case, right. When you buy something on Amazon, right, there are third party apps which do price tracking, you guys are aware? Yes. Right, some of you may be using it, right?

Yes. Is the price going down, right? It will give a, right? It will say 70 percent likelihood the price will drop, right? Yes. Right. It will say 5 rupees if I buy it, will it go down? Yes. Yes, 5 rupees, I am happy, I have saved 5 bucks, right? Similarly, if I buy this pen or if I buy this bottle, will it go up? This is the waste I am going to generate, chumma, a third party, so I just take my card, copy paste it into that app, it tells me this is the amount of pollution you are going to make.

Will that impact my purchase decision? Some of it may, right? I am not saying this is a solution, right? This is one way to think about it. [00:46:00] You attack the problem at the source of waste generation. I am not saying this is how you should do. You flip the coin and then think about it from where the waste is generated.

Often you will find right, they will say this bottle is made from 60 percent recycled plastic. They will not define what is recycling. Often what will happen is right, at least I, my company what they used to do, I will tell you. When you make this bottle, you will end up getting some waste. They will take that waste within the same factory, put it back into the machine and say recycle.

Is it, is it the definition of recycling? No. In a way, it is true. He is recycling. But it, that plastic itself never left the facility. But as far as the, right, when they report to the government what is recycled, they will say 70 percent, Coca Cola will claim, right, 90 percent recycled water, all the thing they will, we are recharging them and all the story they will tell you.

But net, if you see, they will be actually taking it out. Understood? Right? So these terms like recycling, these are all like companies exploit these terms just to. [00:47:00] It is a feel good factor. You see, uh, recently I bought a pencil made from 90 percent recycled plastic. I know. Right? You pay 100 rupees for a pencil and it says, you know, then I know.

He is using some, uh, you know, words just to fool you. Got it? So, the point is, right, do not say, do not force AI, do not force image processing, right? You can use that, but leverage it, right? Use it in a different way, right? So, I am, I am not giving you a solution per se, but rather how to think and how to attack the problem.

So, what is the fundamental tenet? What is the fundamental requirement? Attack the problem at the source, always. If you fix that, you don't have to go all the way downstream and then wonder what, what do I do? Right? One common thing is, right, or if you are talking about, if you are talking about, right, waste management, right, one common problem is at the downstream, waste segregation.

Even today it's still a big problem. Why? What did they do? [00:48:00] If I have to recycle this bottle, how will I recycle this? Think about this thing. It's got a, Some plastic, wrap, metal, plastic, it is made of hundreds of multiple components. So ideally if you have to recycle, what should I do? Take a screw driver, little by little segregate it, got it?

Then melt the metal. Metal can be recycled, right? Stainless steel? No problem. I can 100 percent recycle. Plastic? No. It will degrade. It will go bad. Plastic inside will go bad. Right? All the seals, o rings, silicone seal inside, not easy to recycle. Finally, they will turn it to bitumen, they will mix it with tar, they will put it in road.

How much can I recycle? Right? It will end up in a landfill, ultimately. Right? But, generally, what they do is, they will crush it and then slice it into small, small pieces. Because I cannot sit, imagine, if I have one crore bottles like this, can I sit and then unscrew it? Can I pay somebody to sit and do that patiently?

I can't do that. How much will you, will you be willing to do that? [00:49:00] Let's say, if you order a gun, I am asking you to do that, I am paying you. May be we can introduce this. Is it financially feasible? Is it financially feasible? State your question. goes, it gets chopped, then they have a multiple sorting process, they will have a magnet, any metal that is ferromagnetic, it will pick, then they will throw, they will use centrifugal force because different densities will fall in different places.

If you do it at a predictable rate, that is how they segregate. After it is done, right, you have an image processing thing, you run to a camera, right, and then finally there will be couple of people sitting and then they will manually sort out because the image processing algorithms we have are not robust, right.

One recently for ITC, I mean, just outline, all of you have seen Sunfist biscuit? Yes. So biscuit what happens is, right, the . You go to the factory, they'll make like . [00:50:00] They'll make deadlock, biscuits. What have biscuit right now You bought that Mary, what is it called? Sun fet gold or something. Mary Gold, right?

Sun fish is called Mary. Right? Whatever. Right? Whatever. Not water, right? That biscuit. Listen, listen. Now this is possible. So what they asked me, right? You have a stack of biscuits, right? What happens is when you bake, sometimes the biscuit will be non circular. Would you be okay with the oblong biscuit?

Right. Your ll like what is this quality control solving? Right, so what this photo does is it's got a camera and the biscuit will run like that's the speed of digital go. Okay. You have like a one 20 FPS camera that takes that many pictures and there is a nozzle that it'll shoot and then it'll blow that biscuit away defective piece.

So there's a camera here and we are able, it runs like really fast. Right. You've seen those videos, right? How it's made videos, right. And then I have to track that biscuit and shoot out. [00:51:00] Often what happens, the sink gets missed. So they have a machine from Switzerland. They said we are recreating somewhere, right?

In the technical thing, right? So through some contact way I got involved in this. There are multiple problems in this. If you see LAR is a problem, so you have to reject two our biscuits that are non circular. So, you have to throw away biscuits that are little bit bigger because what will happen if one biscuit is bigger?

I never thought of it myself, right? We will have a packet and suddenly there will be a pump and, right, yes or no, right? Will you be okay with that? So, all this is happening in the background. I am shocked to see the amount of biscuits they reject per day. So, again you go back to processing. How do you process so you do not end up getting this?

What is the moisture content there? Food processing. How much water Right, how much, uh, right, they mix, right, some, uh, this caking agent, anti caking agents, right, lot of, uh, chemicals they mix, right. INS, right, lot of numbers they have, right. So, they are, uh, mixing so, so many things, right. There is a big mixer that was doing that.

So, even little bit half a percent of, you will get all this. If the mixing is improper, you get [00:52:00] all these problems. You understand? So, if you get into automation, right, industrial automation, right, basically kept a lot of problems like this, pure image processing problem and syncing issue, right. Now the question is the cameras, right, if you look at, right, that's like 2 lakhs, 3 lakhs.

And that camera has to run continuously. If it's a 24 hour shift, without turning off, how long can you run your cell phone camera? 10 minutes it starts heating up, right? It is taking a full HD picture at 120 FPS and the camera gets no break. Right? They will stop the length, that's when the camera can take rest.

Right? So forget about the hardware, right? Look at the software processing side, right? I take an image, right? Right? Right? You define as a clarity and then you have to give a deviation. You have to put two circles from within this bandwidth if the biscuit exceeds. Right, so what you have to do, biscuit may end up anywhere.

First you have to take, find the OID from a circle and then put what is a tolerance in and around that, just one actual problem that I'm, so that's why I'm able to give you this much detail right Then within [00:53:00] that zone. If it is not there, I reject it. Got it. So, I A pure image processing problem. Beautiful work, right?

Right? So, we, some few things we tried out. Got the idea. So, again, this, unless you go and see it for yourself, right, you may not get it. Students, how many of you are working with image processing? Raise your hands. Image processing, one way or another. There are some teams I reviewed, right? Image processing, if you are working, there are a lot of avenues you can steal, right?

For instance, right? I do not know how visible this will be. Yesterday, okay, we were trying to,

I do not know if you can see the video.

Can you see this toothbrush vibrate, right? So this is vibrating at 18 kilohertz, okay. For a student [00:54:00] project, right, we bought a toothbrush, we were trying to run through a high speed camera, right? I put the thing through my cell phone camera, I tried to shoot. You used, uh, a clip of Google GCam, right? Yeah.

My phone doesn't support GCam, so somebody ripped off and made it for my model. I have a sample in there, right? Nothing came out. Then, uh, through, after some twiddling, through Samsung, what happened, I managed to capture this image. Then I understood, okay, there is so much processing going on at the back end, where Google actually fails, and Samsung's implementation is better, where I'm able to get a super slow motion, about 480 FPS, and I'll get a reasonable depth of that shaking thing.

Right. People who are working on image processing especially, right, you have still a lot of avenue in terms of improving the computational efficiency, one thing. What is computational efficiency? Can I turn on my smart phone? Image processing is luxury. I told you know image processing is what? You are processing a n by n by n matrix, huge matrices you are handling.

Whatever you do to cut down the computational [00:55:00] complexity, there is a source It is numerical methods, what we call numerical methods, right? I, I, I, I don't know if you will be formally taught, right? There is a subject called numerical methods. You can look into it. Second thing is hardware. My cell phone camera is all I have.

What can I, can I work with this? Right? So that is the second thing. Third thing. Again, for health. Okay. I am carrying my phone, right? You can say, how do you monitor my health? Okay. Easy thing is speedometer. It tells you, you took, right? 10 years back, right? Samsung phones had like this health app, like long back, 15 years back, right?

6 years, 2 right? They had, they had. That speedometer, you can, you can just fool it by keeping it on your, some vibrating thing. If it's on your car, bike, if it vibrates, it will think, I have taken a step. Now they have really improved the algorithm, right? You cannot cheat. It will not, it will not give you a false positive.

It will not say you want when I am not wanting. It will tell me if I properly [00:56:00] take this step, it is able to, right, really look at my accelerometer data and then tell me whether I am taking, walking up a stairs, walking down a stairs, where I am, my geolocation, so much data it is capturing without even me knowing, whether I am standing, whether I am sitting down, is my gait, what is my gait, Walking like this, or am I walking like this?

Just with this one? You can't do that today. Samsung is doing that. Right? They don't tell you, but they, that is the level to which they're doing an assessment. Can you tap into that data, those tools who are not just to use your cell phone for just as a lifestyle improvement device, right? Somebody said digital wellbeing, we want to work on that, right?

The SA I gave them was, we want to punish them. No, don't talk. Talk about punishment. Talk about rewarding, incentivizing good behavior. Yes or no? Right? If I start punishing, how many people can you punish? How many people can you put in jail? Jails will be overflown, no? How many jails are in Chennai? Puzhal, there is a big jail.

Probably one 2, 000 imprison. [00:57:00] What is the population of Chennai? One crore. One crore people can I go imprison? Right? So, the good way to attack a problem is to keep the problem from happening in the first place. So, when you try to solve a problem, guys listen. Right? You try to solve a problem. Your thought pattern has to be, how do I incentivize what I want?

What is the desired behavior? Got it? If I am, if my posture is wrong, can you tell me, right, through data that is captured from my IMU? This is not an IMU. So, just the accelerometer and gyro from my phone, right? All the data Google gives you, if you're on Android phone, all the data you can read, easily. It's open.

You can just tap the data and you can read. Or use Firefox, I showed you the app, right? That'll give you a CSV, comma separated value to give you. Take the data you can process, right? So much opportunity just to leverage your phone. Got it? Or, if you look at today, what is the gold standard for image stabilization?

YouTube's inbuilt algorithm. I have [00:58:00] studied many algorithms, right? Nothing comes even close to YouTube stabilization. What I often do is, I take a video, upload it to YouTube, stabilize then I download. That's it. YouTube does the processing for me. My computer is not doing it. So if I want an image that is stabilized, that I want digitally stabilized, what do I do?

I take a video, I upload it to YouTube, literally on that algorithm, that's just a reasonably good job. Then download a new set. Got it? Right? Stop. Those teams who are struggling, take your smart phone. It gives you a wealth of data, right, through mic, right, through, simple example I will give you, okay. I will let out a simple example, something I am working on, right.

So, one team, right, right, what they are working on is whistle counter, right. It is a common problem, right. If you are cooking three whistles, you want to, you want to turn off, turn the stove off after three whistles. So, it is better to fix them, rather than waiting for the execution to go ahead. So, they are [00:59:00] going that, for instructions to be executed in the next batch, I am not sure if there is a need for that.

There might be a need for that, but it is a, it is a, it is a, it is a bad experience ring. After the routing is on, my phone will ring. I don't even have to touch the cooker. Right? I was thinking about the problem. So that's the solution. Right? So, if somebody, somebody who is good at writing, at writing, can do it in one hour.

Yes or no? Yes or no? You can write an app that does counting of a missile and tells you, turn your phone, keep and go. You understand? There is a problem in a kitchen space where I am leveraging simple technology. It does not even have to connect to the internet. You understand? Right? Another thing. I am talking.

Right? My throat is parched. You understand? Right. There are easily 6, 000 different parameters you can get from your voice to uniquely identify me. Not one or two. Over 6, 000 parameters. Okay. That's crazy if you think about it. Right. [01:00:00] So if you look at that, right, the next speaker will come. He's got much more, uh, he'll tell you much more in depth information.

Right. On how you can leverage this. Right. So those teams who are struggling, right, to still find problem statements, take your phone. Right. Camera, your accelerometer. Your a light sensor. There's a light sensor. Read about the sensors on your typical phone and then see you can leverage it to do a lot of things, right?

How many times, how often am I talking per day? Is the data useful somewhere, right? How often is my wife? What? Your , but it's speech of security. Privacy is gone, but your phone is listening to you anyway, right? Right. This consciously, right? How often am I talking? How hard is my tone? Right? Whether. Can I leverage that to fight some inherent medical condition?

Right now my throat is parched, should I drink water? Of course I know, because, obviously, right? So, but, right? Can something else be found [01:01:00] using this? See, for CS English, it's all data, right? How many of you have read the book Big Data? Have you heard of this book called Big Data? There'll be an elephant with, uh, only one arm.

Heard of the book? All of you should read that book, man. Please go read a book called Big Data. Right on. Big data. Book is called big data. Came out like 15 years back. Very old book. Ok. Today it is ever more relevant. Ok. So, I will continue reviewing. Ok. You have to really, I understand. This course is difficult, right?

How many of you? You can be honest. This course is difficult, right? No problem. I just need your feedback. I can change my teaching pattern, man. I still have 5, 5 classes. Yes. Raise your hand all the way. Raise your hand all the way. Ok. Why is it difficult? That is the half the class. Why is it difficult? It is uncomfortable, right.

The assignments are unconventional. It is not unconventional. They are, they are what? They are difficult. Why is it [01:02:00] difficult? Tell me why is it difficult? You have to think a lot, so that is hurting your brain. That is the whole point. It should pull you out of your comfort zone. Yes, guys? Why is the course difficult?

There is no problem. Yes. Right. This guy, what is your name?

Right. So, he got it right. What I have been telling, the fuzzy front end, right, your tolerance for ambiguity, right, it is frustrating. This is the fourth batch. Guys, listen. This is the fourth batch I am handling, right. Please work with me. It will be very frustrating, okay. But, I assure you, it will change your thought pattern, I told you.

That's a student of mine, Rajesh I introduced, right? He's somebody who used to bunk the classes, he came back to me, and today I told him not to come, because I'm reviewing, right? I'm not taking his class. Right? Him, that's an M. Tech student, who I didn't even take as a TA. He said, I will come and work as a TA, I want to learn.

Right? This course is taught as front end design, [01:03:00] right, in University of Minnesota, in Purdue. I'm comparing notes with some of the best universities, right? Right. So, we have our own students. I talk to my, uh, friends at other universities worldwide. Right? The material we teach here, right, is, is unique to our institution.

Please understand. Right? You have to go to a university like Purdue or Stanford, where they teach this. They teach a thing called front end design. Okay? F E D, front end design. Right? So, all these concepts, right? If you want, right, maybe I'll prepare a little bit of additional notes. Thank you. Okay. Maybe with the TA this weekend or next weekend, I'll sit a lot.

Just pass some time, right? So it'll help you not getting, at least give you the process. You guys are so much used to procedure, right? Do this, this, this, this, this, this, this. Right? That's not, that's not happening. That's the frustration. Maybe a little bit of right? Like more a guide and two, four, and give you right next team, please.

Right Guys, can you go back and work on it, right? What I'll do guys, listen. [01:04:00] Assignment date I will still again extend. Sunday I have put. Anyway till next Thursday there is no class. I will push it to next Thursday. But, but the reason is, right, because I know Vijay just made you guys to not work in him.

That's why I'm not working with you. Right? Just spend some time. O. P. O. P. O. P. O. P. O. P. O. P. O. P. O. P. O. P. Guys, no talking. Just sleeping. Why is he sleeping? I'm also, my eyes are closing, man. Why? I don't know, I'm talking to the glass. This is stupid. Where is our break? Already there. Don't do this, man. Hey! Why?

Hey, what did these girls do to you? No, don't, don't, don't. Who does it? Only girls do it to guys. Girls do it to guys, huh? Or guys do together. Who does it? Don't do it, I feel [01:05:00] you. Guys do to guys. Hi. Let me put my hand. Let me rest my hand. Hey, what are you doing today? Canada? They have it. Hey, our team needs to play.

Maybe. Get rid of all your harshness. I'll go complain to him. That you're doing this. No.

Complain to

that.

Are you going to Dan name? Huh? Why have a[01:06:00]

yes? Me. Are you? How did you go? I Come with me. You going? No. Why the fuck not? I don't know, bro. Are you an idiot? Doesn't she dance? Same. Same. Why is she not in the kitchen right now? I saw her LinkedIn post. It's a cover to say, ah, it's for girls. Some pink colour thing. All girls like pink. But it's black.

Pink is fine, man. Pink is gay. But you like it. Pink is gay, man. I don't mind it. That's how we act when it's gay. You know, mind games. Yeah. Bro, pink is gay. If you like pink, that's a whole different topic. Take a five minutes break and come back quickly. [01:07:00] Yes!

Hey, should we, should we get ours reviewed? No, no, no. Please, please come back in five minutes, right? We have an external speaker, he's going to be talking about it. Bro will get ours interview. No. Please, please, if you have time.[01:08:00]

Uh, Yeah. Whatever you're doing. Yeah. No, I'm not. Yeah. Yeah. Yeah. Yeah. Yeah. Yeah. Yeah. Yeah. Yeah. Um, uh, uh, uh, uh, uh, uh, [01:09:00] uh, uh, uh, uh, uh, uh, uh, uh, uh,

Yeah. Yeah. Yeah. Yeah. Okay. How are [01:10:00] we? here we go. Yeah, okay.[01:11:00]

Yeah. Yeah.

[01:12:00] Yeah.

Problems.

What is it?

Yeah. [01:13:00] Yeah. I think I'm going to be I think I'm going to be I think I'm going to be sitting down.[01:14:00]

I'm What is happening? They see big guy, they want to talk to big guy. How old is, how old is this? I have How old is he? I am not shooting that. You wouldn't know. Will [01:15:00] be building it. He has the train for

it. What can I do that, oh my

standing with that. Thank you, sir. No, do not.[01:16:00]

Build a bridge that barriers don't see. Let's put it over here. No recording from here. Or, it's recording from there. Directed towards speaker. Left or right? Right. Left is Rembrandt. He's making these extracts. You saw him, you saw him in the old days. But he's so different now. Yes, exactly. He's so young.

Amazon also delivered to me. [01:17:00] You got your laptop? Yeah. When you,

where is so much noise coming?

So, I think you all know that I am Dr. Raghuraman. So, HOD of CD and so I am teaching the same course for Mechanical. So, along with Dr. Karthik. Okay. So, let me introduce our executive guest. He is a resource person for today's inspiring talk on AI and product design. Okay. So, [01:18:00] So everybody is, uh, behind that AI, IoT, ML, all that courses, right?

So he has done a lot of work on AI in the past, uh, software field for the past 20 years. And he's, uh, my close friend for the past 25 years. And he's my junior from, uh, And, uh, so he has got lot of, uh, inspiring, uh, areas where you can, uh, think of, okay, uh, in terms of AI product development. And now it's, uh, right time for you, so because you are, uh, trying to identify some problems

So, you will be [01:19:00] sharing this experience, which may be useful for all of you, even after that we can, uh, collaborate with you to train you in certain areas, if you are interested, okay. So, with that note, I request, uh, Dr. Mr. Amesh to handle this post presentation. So please be patient. Okay. Yeah. You don't tell everyone.

I have actually. Not strawberry. You hear me silence, please hear me.

Is it not even at the last, [01:20:00] last? Okay, great. So, um, okay, next, uh, you know, you know, maybe 45 to 50 minutes, right? I talk about ai, machine learning or data science, all are in the same. You know, areas, okay. So, uh, so this batch is all from the computer science? Yeah, yeah, they are all CSC. They are all CSC, okay, excellent.

Okay, so I hope, uh, you will be learning a lot of AI in machine learning and things like that. Or they do only computer science? They do have some frameworks. Okay, okay, great, great. So, the PPT I have, uh, is only for you guys to read, uh, not for me. Okay, so I will not read from the BPT, I will do on my own, you know, own wordings, okay.

So, um, so this is just a market trends, how the AI or data job market [01:21:00] will be in the next 5 to 10 years of time and how you want to shape your career towards next generative AI and, and, and, and, and now we are looking at, um, generative AI max, okay. Okay. MAX max. Okay, so, so with that context, uh, so this is just the job mar, I mean, job market.

I have not said that. This is all told by large research firms, large research, you know, people, um, so they say, you know, the numbers, right? You know, next 10 years you will have 10 million of data analysts will be needed. In all the areas, in all the, in all the fields, not only with IT, um, so it will have, you know, health care, insurance, uh, banking, financial services and what not.

That is whatever domain that you will select, they will be having AI, they will be having machine learning, they will be having deep learning and so on, [01:22:00] okay.

So, let us have a small quiz guys. So, the quiz you have to tell me what is the underlying business of the company. I will show you the logo and you can tell me the company, um, and then you can tell me, uh, what is the business about?

Amazon. Selling goods. Okay. So, selling, selling products in, you know, kind of a platform, right? Okay. So, it is called e, it is called e commerce, right? Okay. Okay. Search engine. Okay. It's a search engine. Okay, great.

Video streaming platform. Streaming platform. Okay, great, great.

Just time cards. Okay. Service platform or maybe cab booking or you know, whatever, right? [01:23:00] Uh, so these are all their business of, uh, the company. Okay. But what is the underlying, uh, thing is they work on data, okay. It is not, when it is not an, it is not an e commerce company anymore. It is not a search engine company anymore.

It is not a OTT platform anymore. It is not a cab booking, uh, things anymore. These are all data companies, okay. Whatever logo you know or you understand, And the black, this is basically the data library of the companies are all coming from the consumption, which is why we claim that these companies are not, the businesses not exactly what they are doing.

There are working on data which means they spent a lot of time, energy and efforts in building data, data in building, you know what. So, in building if you have IOT or manufacturing, [01:24:00] they will start collecting data and so on. So all these companies now started working only on data. Got it clear? Yes, now?

Yes, sir. Yes, sir. Okay, great. Tell me.

So a typical data spectrum, how it is evolving? It is, it is, it is a data spectrum, I will say, uh, So, from, so you are born in 2000 or after 2000, before 2000? Not after 2000. Okay. Okay. So, let's little go back beyond your birth. Like, 95 to 2000s, okay? So, 95 to 2000s where, um, India started, So, we got a companies like, uh, Infosys, you know, [01:25:00] Wipro, TCS, Cognizant and large companies are evolving the time.

And slowly, the clients they acquire, uh, from 95 to 2000 and 2000 to 2005 and so on. They started collecting data in the legacy applications.

Okay, so how does the banking operation work,

where the banks, okay, so the banks have main frames, right. So you, I mean have you seen any black screen, uh, and then in the black screen, uh, they will have to do a lot of, you know, writings, typings and so on, right. So that is called the legacy application, when I say legacy, which is very, very, Older technology.

Which, which, which, which are built by IBM and even still, IBM has mainframes most of the [01:26:00] US banking operations, um, Europe banking operations, uh, they do use still mainframe because of their security nature. Okay? So, uh, you know, mainframe apart. Uh, so people are collecting data from various sources, uh, be it your banking operations, financial services.

As insurance, healthcare, retail like walmart and so on, they started collecting data. So they have stored it in a database this, slowly pond it as data Holmes when I said data Halloween, We say in, uh, in a company, there will be a sales team, there will be a manufacturing, there is a marketing, there is a customer service, there is a procurement, there is a vendor, there is a purchase, a lot of things, right.

So, they will also collect data in database. So, from database, we need to have a collective [01:27:00] centralized data which is called a data warehouse. So, after we build warehouse from 2000 to 2010. Now, what happens for 10 years, if I collect data, it becomes big data, right. So, it becomes big data and, uh, big data now we are talking about collecting big data in a storages like Hadoop, um, and, um, You know, different other, you know, cloud platforms are in place like, you know, AWS, Azure, Google, and things like this started building cloud platforms to collect these data.

And after these big data comes into picture, right, in a picture, now we call it as descriptive analytics. Company are looking at, okay, I'm collecting data. Now, now I want to make sense of my data. , which is a descriptive analytics, right? It'll take one scenario. So one scenario will be the entire slide. Okay?[01:28:00]

Suppose I have, I'm a shopkeeper, I'm owning 10 products. Uh, I'm owning this shop for three years, right? I know the entire spectrum of which product will move, which month, and what do I need to have a stock, right? Because of my history in nature. Now, we are going to do a graphing. We are going to do a visual analytics.

Now, we can say this month, last year you sold 10 geese, 10 packets of geese in the month of September. But this is the month of where it is a festival season, where more geese we will need to order, which is a predicting my sale for next month or, or, you know, forecasting my sale for next month. So, by having a history of data, if I am doing a visualizing or if I do any of the visualizing, last month you have sold 10 or before the month you have sold [01:29:00] 5 or before the month you have sold 7 and so on.

That is my descriptive analytics. And if I am going to predict for the month of October, you will sell, you know, 20 geese. So, I am going to be using a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a And we can make the model which, which is much more prospective, which is called a prescriptive analytics.

Okay. Got it? Got it clear? Yes. Any, any, any questions? Okay.[01:30:00]

Okay. So, you heard of generative AI? Yes sir. Yes. Okay. So, have you used chart GPT for your assignment? Yes sir. Yes sir. Okay.

So in a simple term, uh, chat GPT 4. 0 is your generative AI, right? But the underlying concept, uh, is, is data, correct? So the underlying, um, so they have trained about close to 20 million of, you know, documents and then they trained the chat GPT to answer maximum questions. If you're not getting questions, uh, being answered by charge GT four oh, then they will retrain.

I mean, the backend mechanism is they're training it, right? So that is, um, so how many of you use, um, LAMA [01:31:00] Meta Metas, uh, as well as Germany? Okay. So all these things are all Lums models where. The underlying concept is, is, I mean, is the same, right, right. So how does it evolve? The journey of generative AI right from 2012 onwards.

So after we, we, we, we started collecting data, now we call it as big data. After we say big data, people are using natural language processing, right. So when we say natural language processing, they started do a text mining. So, they started, uh, doing, um, you know, need more, you know, information from the sense of the data, right?

So, so they started using natural language processing, you know, data mining and so on. So, natural language processing slowly evolving, um, you know, slowly to give more and [01:32:00] more insights to the people or insights to the customer. So then you get more, uh, uh, more benefit out of it, right? Cool. So, in a, in a large organization, um, there will be a customer service, correct.

So, the customer service will be available in banking, will be available in insurance, will be available in, you know, all other areas as well, right. So, if there is a problem, then you call the customer service agent or maybe, you know, customer service people to, you know, resolve it, right. Um, so, to minimize some of the work of, you know, customer service agents, you have to We have introduced a LLM models, we have used chatbots, we have used, uh, to answer most of the questions.

Now, suppose for example, if you are riding an Ola, if you are riding an Uber, if you are, if you are using Swiggy, if you are using Zomato, there is no customer care, uh, actually, right? So, there is no, uh, [01:33:00] you know, customer care agents being available. That is all. So, you are frequently asked questions. If there is a frequently asked questions, then it will give you answer right away.

Even if you are frequently, even if your FAQs are not getting answered to your query, then only it goes to the, uh, you know, customer service agent, right. So, so these models are your frequently asked questions and now we are building a chat bot. Now we are calling it as generative AI. So the chatbot is getting transformed to generative AI and, and each and every, uh, you know organization in the future will be having their own generative AI platform for their internal use purposes, right?

A different example, um, suppose I'm working in one company and I hold the maximum information. Now suppose I'm leaving the company and joining one company.[01:34:00]

the information which I got is kind of, you know, either diluted or maybe it will be, you know, gone off, right. So if you move to the different company, so the information is, is now lying in a system called generative. All the documents, all the necessary things are kind of available in the system. And a newcomer who joins the, uh, who joins the new, um, new role, he will actually don't need a KT or a knowledge session from me.

He can go to the generative AI and then he can make sure that everything is in line and the proper notes are kind of, you know, drafted and so on, right? So all this information will be drafted in generative AI. So likewise, each and every company is actually focusing on to build their own generative AI platform.

Or they are trying to build a, I mean, their own LLM model for their, I mean, for their organization, right? [01:35:00] So this is one thing which is kind of happening in the IT world or maybe the data world. Any questions on a,

so a typical product, um, I have selected product because, you know, each and everywhere there is a product, right? So you can take it, we can make a product. Or we can, um, um, or if there is any manufacturing, there is a product or there is a retail, there is a product and every company will be revolving around the supply chain areas, right?

Um, so in that instance, have, you know, used this product design or we can say as a product management, right? So what is the, uh, what is the life cycle of a product when product you can think of? You know, either a car company [01:36:00] which is manufacturing their products, so what do they do as a first step? Raw material.

Okay, raw. You know, before getting raw material. Research. Okay, research. Just design, right? So, we have to do research. Okay, we will take from research, right? So, that is product research. So, before ever doing or launching a product, I will do research on the, okay, what am I going to do? I am going to launch I 20 or I 30.

So, it has to be researched, market has to be researched accordingly. After we do the research, then we have to design, yeah, ok. We have to do design and after we do design, we do prototyping. After we do prototyping, it has to be approved by lot of people and after we approve, it goes to the manufacturing.

And after we manufacture, it goes to, you know, fabrication, packaging [01:37:00] and it goes to testing and so on, right. So this is a clear, um, products, right? And this is a manufacturing or maybe any product for the matter. But if you think about an IT company, if I am doing a product, product is my end result, but what am I going to do?

I have to do a research, correct? Right. Right. So, I have to do a research and put a wireframe. If I am making a mobile app, um, I have to do a wireframe. I have to design myself, right? And different functionalities. Who is my user? Who is my customer? Who is my, you know, end customer? And then, how am I going to have the user friendly application?

And how am I going to, uh, build my, uh, build my database design and so on? So, we have to do a complete design out of it. And after we do design, then I have to build it. So, so the manufacturing, which is equal to your build here in it, and after we build it, then it goes to the testing. And I, or maybe in between the [01:38:00] prototyping in the manufacturing will be your proof of concept that you are just making your idea, consuming your idea, you want to verify it with somebody.

Then you will build a short functionality and you will test it in the market or maybe give it to somebody. You know, subject matter expert people and then asking it to test, which is a prototyping. After you validate it, then it, and you are building it, after you build it, you test it and you, goes out of the market, right.

So, get, get more and more customers out of it, right. So, in an IT world, you can think of, these are all your, you know, the value chain of your product management or product engineering, right. So, now you think about, I am going to take one scenario. Product research, right? So how am I going to implement my ai?

Okay, so how am I going to implement my, my my, my, my, my, uh, AI and machine learning? I get all the survey questions. I go out and then ask questions to maximum [01:39:00] people. I take sampling, right? I take sampling. Then after I take the sampling, I will. I will do a research. I will do data science. Okay, my product will be, my demography will be between 25 to 35, you know, age people.

My target audience will be male and female. My, my this thing will be, you know, all demographic will be identified using my research and after we do that, uh, now we, let us go to the design, you know, side. So design, you may be thinking of how am I going to implement AI or machine learning. Suppose one person is there, he is doing a product design, and he is moving on, and there is a new person coming, and he is also making a design, and then he is moving off, and then the other person coming, and he is also going off, and then he is also moving out.

So, all these design will be now being stored in your software, right. So, in a typical machine learning [01:40:00] algorithms, you have learnt about image analytics, you have learnt about, you Video, analytics and so on, right? So in the design side of it, even if there is images are getting available, you can make a image analytics, right?

So you can design a product wherever there is. I mean, they have left it or wherever, uh, there is a futuristic that we can able to think about building the same design and so on, right? So likewise the history of product design. Different, different products may be lying in the system. Then you can always refer back as the image analytics and you can start progressing it in the product design side of things, right.

Next we go to, you know, building it, right. After we build it, we may have to do a lot of analytics on top of it, right. You know, it could be your, you know, descriptive analytics after you get your customers or after you, uh, [01:41:00] you know, collect details from the customers and so on. You will do a lot of analytics on top of it, right, Um, How does, you know, Swiggy do, do an analytics?

You know, you know, think about I am the restaurant, um, and I own, um, I have Swiggy and Zomato orders and, uh, in the Zomato orders, there will be a analytics portion. Saying that it will, it'll give you a descriptive analytics saying that your timings, your general spike in your order on Fridays will be high between nine o'clock to 10 o'clock.

Uh, or maybe your orders will be spike between, you know, Saturday, you know, timings between, you know, six 30 to nine 30 and so on. Likewise, they will give you a rough statistics if I am the restaurant owner, uh, from Zu and Sonato. So, it has [01:42:00] a huge history of things where it will ask people to, uh, keep, uh, you know, buying more and more and then it will keep, you know, cross selling and upselling activities will happen.

So that you are, you know, having real, you know, product will be giving lot of, uh, lot of orders and so on. Right.

So after you do this, uh, then it goes to, you know, testing. Um, so by testing also, defects, how do I identify defects? By history of different product testing or nature of the testing. Uh, and the different, you know, bugs are getting created, you can always identify. So wherever there is a data, wherever there is a data, whatever domain you are into, There is a data science, uh, there is a artificial intelligence, and there is a machine learning is available everywhere.[01:43:00]

Any questions so far?

Okay. In a, in a, in a, in a scenario where, um, supply chain intense, um, problems, right? When I say supply chain intense problems, um, like manufacturing, like logistics, retail, hospitality, home travel, uh, are supply chain intense problems, right? So industry are focusing towards supply chain intense, you know, problems.

Plenty of problems, uh, will be, you know, coming along. That area. Um, and then they will keep solving it to minimize a lot of cost because in the supply chain you will involve vendors, third parties, uh, and the companies [01:44:00] who does manufacturers, right? So there, there will be manufacturers that will be

insurance companies, but they will involve a lot of vendors. Where they'll be doing it. Right. So companies are looking to cut down a lot of the cost in the supply chain, in the, in the, in the supply chain value chain. So they are trying to cut down all the costs. So the, to cut down all the costs. They will be looking at implementing artificial intelligence and machine learning, or maybe the generative.

I think this is slightly small, we're not able to see it from there. Um, so a typical. Um, Yeah, I think, um, which is one, the customer analytics, two, marketing analytics, three, [01:45:00] supply chain analytics, four, digital marketing. Companies are kind of focusing towards customers. So who are my customers for banking?

Banking, um, you know, how many have bank accounts?

And, uh, who has credit card are my customers, who are, uh, loan, I mean, who gets loan is my customer. And for, uh, for retails, you know, people who purchase product, those are all my customers. How do I look at it, right? How do I look at it?

So, for a bank, the customers are working. Even for retail, even for manufacturing, even for travel, even for hospitality, even [01:46:00] for health care, all these customers are very, very important because company has to make sure that the customer has to spend more and more to make the profit keep on going or keep on increasing it, right.

So, how do we understand the customer?

Data, right. So, I want to understand the customer and, uh, uh, it is called customer segmentation, right. Or like, you know, one, you know, one thing in the industry we call it as customer 360 degree view, ok. Let us talk about customer segmentation next. But the customer, you know, 360 degree view. Okay, so company will now understand the customer 360 view.

Okay, so now, okay, Ramesh is having a savings account and he's earning 50,000 per month, but he is, uh, spending only 30,000 per month made in silence. Um, [01:47:00] so, uh, you may, so he is having 20,000 additionally, and, uh, why don't we push for credit cards right? Or why don't you ask for a loan where he will be interested in car loan or he'll be interested in a bike loan, or he be interested in getting some gadgets and so on.

Right? So the banks will be looking at the customer data and then they will do an analysis enter, right? So have you also thought about this right? Suppose you are talking about one product, you know, you know, say for example, if you are talking about Apple iPhone 15 or 16, after you open up your phone, you will receive that same iPhone in your, you know, Facebook or, you know, Instagram or so on, right, so have you thought about it?

You speak something, but you get the same message in your YouTube [01:48:00] or maybe in your Facebook and so forth. Yes? Okay. So that is called affiliate marketing. So, you know, customers, uh, so the companies are looking at you, being touched by you, you know, each and every moment. Right? So automatically, you will have that sense and then keep them in the recommendation.

Okay. So, customers are, uh, so the companies are watching you, watching your movement in your social media and then they are giving you the right recommendation and, uh, right, you know, suggestion for you guys, right. So, which is called a customer 360 degree view, right. So, then the customer, you know, segmentation, right, you know, say for example, have you, uh, I will tell you a real scenario.

Where, uh, I have, uh, gone to a shop called Baggett, okay, B A G G I T, Baggett, right? So, uh, I purchased about close to 3, 500, uh, in that [01:49:00] Baggett shop, then, uh, using the data, then they said that, uh, okay, if you purchase for 4, 500, you get some additional Okay, so the mindset of the Indian mindset will be okay if we purchase another thousand rupees, I get additional two or three backs and I keep on purchasing it or for, you know, for 500, right?

So, which means that from a lower level of customer segment and I am, I will be in a bucket where, from the 5,000 range, uh, between 4,000 to 5,000 range, there is a separate segment. Uh, between 3000 to 2000, that is a separate segment and thousand to 2000 that is in a separate segment, right? They fall under 3000 to 3000 finance segment, right?

So the sales person who will again, think about it, right? How can I make the customer from 3,500 to the next [01:50:00] segment, which is a loyal customer and so on, right? So how do we push it by giving more offers, by giving promotionals. So, you also receive, you know, messages in your mobile phone on Friday, Saturday and Sunday.

Uh, you will get, you know, messages if you have purchased, you know, something on Reliance Trends. If you have purchased on, you know, Max Fashion, if you have purchased on any other, uh, you know, you know, you know, who collects your number and throw messages to bring, you know, bring it to the shop and then make them upscale to that, you know, entire one, you know, the segment.

Thank you. So, likewise, um, you would have given a mobile number in any of the places like, you know, lifestyle, you know, reliance, uh, max fashion and so on. So, they will use that as the membership and, uh, that membership will be [01:51:00] tagged as your loyalty analytics. Which means they will identify that you are keep ing by store, you keep buying again and again, or you get the service again and again.

If you go to, uh, any of good salons, uh, in Chennai, they collect phone numbers. Um, you go to Green Trends, you go to natural, you go to Essentials, they collect numbers and then they will say that, you know, I have membership, uh, and then you can use membership or to reduce your. Now, Boston, so on. Thank you. So you, you get 15 percent off and so on, which means that they are making them to come, um, come to the, uh, shop again and again and again to maximize their profits, right?

That is called a loyalty analytics. So customers are king. So people are thinking about getting, uh, more maximizing their profits, uh, by, by [01:52:00] bringing them, uh, to the event or the shop again and again. Uh, that is called customer analytics. So likewise marketing analytics. I will, I will tell you one more scenario.

Um, so have you start off Nike. Nike is the true brand. It is a top one brand. Um, so I worked with that, you know, show bank for a while and it was around October or November, um, during the Thanksgiving date. Like in India, in India we follow cricket the most, right, wherever we talk, we play cricket. So, that is our national game, okay, our national game is not hockey, it is, it is cricket, okay.

So, but in US, so they follow baskets, I mean they follow basketball, they call it as national basket NBA, right. [01:53:00] So, it's um. So Nike launches shoes, uh, like in the name of Air Joda, in the name of Air Kobe, and, and, and they launch in the name of basketball players. Like Howe, Virat Kohli, Anthony, and so on. But they don't launch any shoes as such, but they launch shoes.

So what happens, one day Nike wanted to launch shoes in Twitter. Okay, it was in 2012. 12 or 13, I do not remember exactly, but they launched shoes, Nike fuel band, Nike, like Nike Kobe and shoes in Twitter at 5 a. m. California timings. Since, why 5 a. m. California timings, uh, because Nike head office is in, uh, Portland, Oregon.

Okay. Which is, falls under the mountain standard timing. [01:54:00] Okay, so they wanted to launch, uh, in the Twitter at 5:00 AM PSG timings. Um, so they have got thousand thousand on, you know, in a thousand shoes roughly. And, uh, the value of the shoes is around $200. Okay? So at Fire pst, they will. Give the links in the Twitter and uh, as soon as you give the links in the Twitter, it, uh, automatically people will start buying it, right?

So you get review, so you get command, you get everything. So what happens is they will sell thousands shoes into $200 of business. Can you guess how much of the time it takes to sell these shoes?[01:55:00]

How many, yeah, how many minutes or hours to take to sell this thousand computers? 5 minutes. 5 minutes, okay. 2. 5 minutes, okay. Any guesses? 1 minute. 1 minute, okay.

7 minutes. Okay, so they have sold a thousand shoes off. I wasn't sure. So I don't know exactly. But, uh, thank you. We just kind of very, very, uh, very good innovative product. It is very similar to your smart watch now we are calling it as, right, so they do, you know, which is very, very innovative product which is kind of launched in 2012, [01:56:00] um, so they have, they, they sold that shoe in 7 minutes of time.

Think about the revenue, 1000 into 200, which is huge, right, uh, now it, it was happened during the Thanksgiving day and, uh, they wanted to do the same.

So, we have one month of time. So, we have one month of time. In the one month of time, what did we do? We have done the sentiment analysis, right. So, we have the data, all we have the customer data. Customer has given good reviews, customer has given bad reviews. Customer have given suggestions and using this data and different demographic that we can able to identify where these people are locked in.

Whether they have locked into tech, you know, Texas, or people have locked in California, or people have locked in, in, in, you know, New York and whatnot, right? [01:57:00] So we can have a clear understanding, uh, out of this thousand or out of this, you know, 2000, 3000 people are locked in the Twitter. How many have bought the shoes and how many are from Texas, how many are from California, how many are from New York, whether we want to focus only target marketing on each and every state, right.

So likewise, marketing analytics will be running it, right. So the same product launched in, uh, in Christmas time and it was a very, very big hit and, uh, the same product launches happens in the, uh, in the newer times. It is again double the amount of revenue that they have got it. And these data collected from three, three or four product launches, which this data is getting, uh, you know, refreshed.

They have collected more data, more sentiments are produced, more marketing campaigns are done, and more products are sold. So this product, each and every week, even now, they launch product [01:58:00] in Twitter. And this product Uh, now it's a successful model and they have transformed this thing to Europe, region of Nike.

In Europe, Nike was not a very, very top one. Uh, in Europe. I think Aidas is number one brand. So they have taken this product launch to Europe and it is again, a successful model in, you know, uh, product launch in Europe as well. Right? So likewise the marketing, uh, um, the mindset of the company is slowly getting changed.

So, even wherever there is a possibility, there is a marketing is that kind of, uh, is kind of available. Right. So, that is called marketing analytics. Right. Any questions? Likewise, plenty of area. Wherever there is a data, there is analytics. Wherever there is a data, there is an AID possibility. Wherever there is a data, we can do Gen A, we can do, you know, what not.

You know. We can do entirely. Right. All the world or an IT world is revolving [01:59:00] around gender debate, right? So, I stop here to hear if you have any questions. I am done with the presentation. So, at least, you know, 10 or 15 use cases that I am expecting from you. sir.

Okay.

Familiar. Familiar. Okay. How should they prepare them? They're going to graduate another three years from that. Okay. So that in terms of tool, it's a very tool. How do they integrate as apart from assignments? They really don't. We have not any use cases. It is a very important thing. Okay. See in three years, as an educator, for myself, how can I [02:00:00] write things as a student.

Okay. Okay. See one, uh, you have to start at least the baby steps, right. So, you know a small baby will take, they will crawl and then they will stand. And then they will slowly take steps, like. you Now you are in the right step, third semester you have lot of time for you guys to keep learning it. So, the base tool is python.

I hope you must be having python in your curriculum also. So, the base tool is python and you have to learn python on top of it lot of packages are available.

And, uh, even if there is an algorithms, um, there are lot of packages are kind of available, right. Even if you are doing video analytics, even if you are doing image analytics, there are packages are [02:01:00] kind of available.

So, for, uh, the underlying, um, element is statistics, okay. So, the mathematics and then, uh, you know, statistics. The formula, uh, and everything, right. So, you know, you can do that.

So, if you take logistic regression, there is a formula to it. There is a linear regression, there is a formula to it. I follow Khan Academy, ok. You know Khan Academy is a YouTube channel. So, Khan Academy, uh, the mathematics he teaches very, very nicely. The statistics he teach from the basic, I follow Khan Academy one.

It is in the YouTube, and they have a separate, you know, website also. The other one is that, uh, for a statistics, high level statistics, right, so not a low level [02:02:00] statistics. If you are hitting the algorithm side, I follow Brendan, B R E N D O N, uh, Shah, uh, Brendan, I mean, if you, I don't remember the last name of Brendan, but I think it It will go very, very slow, it will go, you know, very, very slow so that you understand this nicely.

Uh, it will be very, very useful for you guys. And, uh, when you're using Python, I hope you're using a Jupyter notebook and, uh So you You can use anything. It's an IDE. It's a Jupyter notebook or Spyder or whatever. Just like VS Code, it's an IDE for developing machine learning models. Bro, Jupyter Notebook.

How [02:03:00] dare you, how dare you disrespect my Jupyter Notebook. Bro, don't even talk about MQTT. Strawberry got over, no? Mint. Mint got over. Guys, any questions? So Python is the base, so I think you may have to start learning Python. You know, by then and keep putting your efforts on, you know, collecting data. How do I do all data analysis?

You know, use cases, problem statements. I hope since it is, I, you know, I, I couldn't, you know, think about your third semester, because I thought you was a third, you know, third year, fourth year. So, so these use cases are maybe a little farfetched, but, uh, and maybe after when you're in third year, you can, you know, reconnect this.

And then you can actually, you [02:04:00] know, look at or kind of refer back, we can have one more session maybe after one year or more. Students, any questions? Any questions? No question is a stupid question. Please ask. Okay. Now you have a course, a writing course.

That is the same. So, ultimately, they are singularity. You do not have to worry. Yes. Just to that point, it is carried, it is carried. Yeah, yeah, it is carried for even the ID world. Five years. Five years, where this is going to go? There will not be any programmers, I would say. Yes. Guys, that is the key message.

That is the key message. That is the key message. So, what do[02:05:00]

you do? And I'm only. There is no need for good. But I am. I don't like it. Yes, I use to be. Just. This is not even. Able to copy. If you write one line. Right now it is actually. Lining up with. Indicates. That is going to be the future, okay, which means a new, new trend will be coming through, right? Not complicated.

Just a follow up question. Yeah, doesn't really understand. Context

is context.[02:06:00]

Correct. Correct. Correct. Correct. I must have known the movie called, uh, the Rajinikanth movie called Yathri. Because I think it was Ten. He's on ten. I only told ten. This is very, very futuristic. We're looking at cameras operated in the pools, and being found in the waters. It's kind of realistic in 15 years.

We are just thinking how to go from 17, 18 onwards. Too many. It's crazy. Okay. [02:07:00] Okay. Okay. Okay. Okay. Okay. the kids, right? What is going to happen? I'm going to be 19, and then I'm going to be 20.

But what do you do for a living? What are you going to do for a living? Business is a It's a suicide. You think about, uh Priyank will get offended. Priyank, where is Priyank? Priyank, uh Priyank, come here. Wherever you go That is the local store. Right? Wherever you go Right? Wherever you go, Max. [02:08:00] Wherever you go Priyank, where are you going?

Right? How do the small people in the survey think about it? In the latest trends, you take a shirt for about 6. 99, 7. 99. Tata has come up with Studio, and he comes with the same brand. 2. 99. You get a shirt for about 4. 99. 2. 99 is too cheap, bro. Yes, it is cheap. Very cheap. You go to video 299. Go to 199 socials.

Yes. Within. Everyone has it. You need it. You go to an elevator randomly, you'll see 10 people and they are in the same seat.

Okay. So that is the mindset. So let's take one more problem. Okay. No, this is again a suicidal attempt. I would say, maybe in the future, the business will be transformed to a different level. So I'm doing a research [02:09:00] on semiconductor. Okay. The Semiconductor will be the next, uh, Next, uh, Open up for India. At least in India.

That's the next big thing, bro. I mean, not the next big thing. It is already the big thing. Without Semiconductors, nothing you can do. Oh, then producing more, huh? Without Semiconductors, you can do nothing, no? No, the thing is, Even Modi set up some Meeting, meeting or something. What are you doing? Modi Both of these guys are fucking, man, sideways.

Bhadresh, you're so romantic bro, you're holding hands. What? I said Bhadresh is romantic. Bro, I need to ask him a question, bro. Ask. Ask what? Ask, yeah. Give me your hand. He'll ask questions. Sir, what is AI, sir? I don't know. What [02:10:00] is your name, sir? Sir, please give me an A. I., sir. I want to do my homework. I want an A.

I. Sir, what is your C. G. P., sir? I want an A. I. to play keyboard for me. Bro, I can, I can, I can detect the smallest of pressures and stuff. That's it. You know, when you do this, no, that won't happen.

That's called teasing. You tease, and then you're ticked off. It's a game of politics. He is the media. Why? People believe, Because that's what I'm Football. We really need to show many of people believe. Jaldi chhode takto. Jaldi chhode takto. 5 o clock. But I hope [02:11:00] that doesn't spoil my people. At least it does.

He's raising a very valid point. That should I focus my energy, right? I look at it this way, right? We have spoken about population demographics, right? We have a lot of young people, middle aged people. Old people. Now India will invert, right? Our deepness ratio is slowly stabilizing. It will fall below 2.

Right now it is at 2 for the first time in history. So, we will start shrinking, our economy will start shrinking, right, our profits will start shrinking, which means we will, we will be there where Germany is today, where South Korea is today, where Japan is today, right, which means there are lot of old people, old people will need a lot of geriatric care, look at Atulia, right, you will see lot of senior, right, assistant living, all these terms they are coming up, right.

So, tax base will It's already opening up, where, you know, the sons and daughters, you know, they're in UK, US, earning, [02:12:00] right? So they are not able to take care. Culturally for them, right, to immigrate. They are brought up in an Indian country. They don't want to leave the country. Right? They will have a lot of problems, right?

No, not those kind of problems. Daily life problems. Simple, simple thing. They want a decent income. Super doctor. Give me cheap alternatives. For instance, right, one project that I'm currently working on. How do you take somebody who is lying down, who is close to death, right, maybe they have to fight somewhere for 3 months, 6 months, how do you make him sit, put him on a wheel set, take him to the toilet, right.

If you import a machine, Atulia has machines like that cost like 5 lakhs, 3 lakhs, right, motorized, completely motorized thing that you import. What, uh, can you build something for 10, 000 rupees? I am okay maybe turning a few pumps. Right. So, maybe a, maybe a few, maybe a scaled over version of the D featured machine, something like that.

So, that will help me, right, take out the equation, right. [02:13:00] The staff has a leo, take out drift. Old people, they say, we got a back problem after labor problem. That is the first problem. Nobody, nobody.

So actually focus, focus on, look at where Germany is today, that Japan, Korea, today, that is India's future, right? Wherever there is business there. Yeah. Yeah. You have narrowed down it. So I will give you a same example. Um, the patient, how you can, um. You know things like, I mean the patient who is actually not, you know, you know, I'm not saying it is a physically handicapped people.

Um, so, have you heard of IIT Madras Research Park? Yes. Right? So, in, in, in, in the, in the Research Park, they are doing a lot of small, small products, right? I have seen the same product and have people who is, you know, physically challenged people who can use a small [02:14:00] motor type of robot and he can ride within the house, wherein he can go to a restroom easily without ever again, without ever again, right.

So likewise, plenty of small, small products that they build. IATVM, you know, Research Park is well known for building products and they can, they are helping the students. I mean, the faculties are helping the students to enable them to entrepreneurship, right? So those are all the areas where we have to improve upon.

Uh, I mean, look at China, look at South Korea. They have built a lot of automation use cases. I mean, when they say automation, automation in home, automation in office, automation in, uh, you know, what not, right? So, those are all the things we need there. You know, software will be never ending, but you have to think a little bit beyond software, right?

Yeah. So, you know, how do I use semi conductor plus device plus software, right? And, and how do I use light plus software, right? So, it is, you know, that type of a project on [02:15:00] a, you know, work will be coming along the way in the future, right? Like I said, India is evolving towards next phase of the life, I would say.

So, you may have to enable them, your programming skills, your ideation skills, like everything will be. Uh, you know, lane to bring you to the next level. The day of program is done

next when I say it's dead right, and then of the day program a can only still together, part of the person, a human.

Even contextual, right? Looking at the project, solving a problem, right? Understanding. Understanding. This is a,[02:16:00]

so you may have to think about a very innovative thing. Likewise, you are, sustainability is important.

Thank you. Thank you. Yeah. Any questions, guys? Any, any questions?

I'll give you two marks. So this is all you have to do. Two marks. Ask them. Ask them questions. Do you guys need any more? Can AI think in the future? Can AI think in the future? Is that a sound enough? Can AI think in the future? Can AI think in the future? Thank you.

So, um, I think I will slowly think in the [02:17:00] future, um, maybe the same example, I, I wrote it 10 years before there was a movie called, um, I mean, it's called Robo, um, where, where have you not read it? Referring to a movie which was based on sci fi. And, uh, after 2015, I really thought natural language processing will fail.

Right. And a lot of people are taught but thinking different. Yeah.

And slowly can able to make two has come up with a semiconductor that kind of, so again, V has come up with a semiconductor device. It is a GPU and, uh, that GPU is much more faster, uh, you know, in accessing data and providing result. Right? And likewise, in future, the next level of thinking in the [02:18:00] neural networks will be, you know, the thinkability, uh, in the AI, within the chip itself.

Right? In future, we don't know. You know, in place of you, uh, you know, there will be a chip, And then the chip can answer it, or maybe, you know, there will not be a professor where Robo can be able to teach it. This thing involves experimentation, right? So, will AI be experimenting with information? See, AI is actually experimenting, uh, a lot of things in life sciences.

A lot of things in drug discovery. A lot of things in, um, uh, I don't know. So, which is all of the three initial states, right? I don't know what I can call this state. Give me an, uh, give me one example, and, you know, in the diabetic, uh, yeah, it would be called diabetic. They would have a failure. I [02:19:00] think, yes, I think, yes.

They can actually predict. They have a smaller version of the kidney can be realized in the human, right? So, that level of experimenting is also going on. That's right. That's right. Which is not alarming, I mean, which is not, you know, makes you scared. But you have to think about it differently from what people are thinking.

Yeah, it will be everywhere. You have to think, you know, 360 degrees, and then you have to learn the entire 360. We don't have anything here.

Caffeine after this, uh. Coffee, right? Uh, caffeine. What do you want to [02:20:00] get? Sweetcorn. Something to go with it. No, sweetcorn. Every Thursday is sweetcorn. Every Thursday. What do you want to get? I want coffee. That's all. Depends if it's Veggies or Sandwiches. Sandwiches.

Yes, but you get this much quantity.

I need, I need to go out. So nah, 30 won't, so there is a question here guys. Um, so it's a very, very interesting question. Um. So, the areas whatever the difficult, I mean what are the difficult areas where AI cannot be implemented right. So, the underlying thing is wherever there is a data, we can able to [02:21:00] implement right.

Now, the problem is collection of data is the problem. As there is one guy who talked in the, when I was actually entering. They are looking at I think his So he said that I want to predict a decree disease, right? It will be a slightly challenge if there is no data. So I will, I will, I cannot say there is no data.

It's the data collection that will be a challenge, right? Uh, because we don't know how the paddy is getting grown. What is the nature of getting diseases? And we don't know the life cycle of the paddy growing. Uh, and the diseases, patterns, if I know the patterns, then I can able to predict. So, my question or answer to you is, the accretion culture for COVID is going to be a heavy challenge for us to do, uh, the prediction.

But I've got the descriptive one. If we are collecting now, we are also [02:22:00] looking at building IoT devices. And then we are collecting data from the aggregation. If everything is automated, everything is done, then there is no need of job, which means the market will go down. So again, the same thing, you also don't stand, uh, No, the market will go down, then Then there'll be no, no need, no demand, there'll be no service, there'll be no money, no.

Someone will have to leave the AI. Exactly. Let's say you've reached the pinnacle of everything. You can't. Let's say. We are telling that if everything is automated, then jobs will go. My point is, my point is, if everything is getting automated, jobs will go, because there is no need of jobs. Which means there will be no need of money also.

You know, you go back to trading now. Hey, you think about it, bro. What is the job of a YouTuber? See, what was there, what was there when you didn't have money? How did people get stuck? They stole, they created. Or they just look at the [02:23:00] pictures. They're not claimed by, claimed by. That'll have to come again.

We want that to come again. That is just a false fact that AI will replace jobs in one or two or three or four or five or seven or eight years. My point is, my point is, my point is AI exists. Because you're not supposed to be scared of A. See, my point is A exists to work for you. But people tell that A will take our jobs just to clear the layer in the market.

End of the day, there's a human behind A. Obviously, A is acting as the thing here. It's just me.

One

sentence go that a job BI will make. Job is just false. It just a false claim because AI can never give, it's just a sentence to create fear among people. No, it'll [02:24:00] create new avenues, is what I'm telling. It'll destroy the old, redundant jobs. It'll create avenues for new jobs that is not. He is The context, the context to be understood is that you will have to learn new things rather than just sticking on to the things that you already know.

I don't like him. He asks what I have to do. I'm not going to talk to him. I'll talk to Kesav. No, the confessions about Casey are in this case, they are talking over there. What confessions about Casey? He's a South Indian. Huh? Bad thing about Casey. Huh? I don't like Casey. Bad? What can you say? I don't like Casey.

I don't like Casey. I don't like Casey.

I just, I just, I just saw the case. Show [02:25:00] me.

I think they might have deleted it.

He's raising a lot of questions to which, right. You have a domain expert, right? He, he doesn't have an answer, right? I have, I have whatever I can search, right? Looked at other university's reports, right? Because he's not a domain expert. No town. World Economic Forum, [02:26:00] WEF 2023 job report that says there are 10 areas.

IT list, right there is a snapshot. If you go to Google and then type in this world economic forum 2023 job report summary report, you'll get a slide. So just to quickly answer, at least next five years, they are confidently able to say, yeah, we already wrote this before. Certain things like trade skills like WF 2023.

Go check. You told it in the first place. Those jobs are safe. Right? Of course. We don't want to do that. That's a different question. Correct? Only AF 2020. You know what jobs are safe. Apart from that earlier, right? Someone like, uh, Fishio Kaku, right? I used to follow him. He says robots cannot see well. Right?

Robots don't understand context. Right? If you've been big thing there from channel, right? He has given whatever picture on us. Ten years back, this is the moment of all the natural language processing, right? The thing is that if you do creative work your job is safe. Now that is no longer the case, right?

They want to do [02:27:00] skits, make movies, right? Pretty much everything. In Hollywood there was a strike, right? The, the guy that does something. They went on a strike saying, you ban this. Government, my man did. Give us a job. So government intervention may be required. Just as an example, guys listen. I will, I will, I will tell you one small history, right?

Chennai Ford plant all of you know, right? There is a Ford plant. 2000 they put up a plant there. Okay. Ford said, I can 100 percent automate. Right. What are called dog factories. I don't need any people to run the plant. I'm talking 25 years back. Technology was already good back then. Government of Tamil Nadu said, minimum 10 percent you have to employ people.

So, by law, they were forced to actually keep certain processes automated. Manual, even though it could be automated. Right. So There is this concept in the US, they have UBI, Universal Basic Income, right? This idea has been floating around, right? Where, if nobody's got a job to do, the government will give you, like, a thousand dollars, something like that.

Whether it'll come to that economic model, I don't know, [02:28:00] right? So, what your question is asking is valid, but for now, follow World Economic Forum job reports, go there. They actually talk about, like, the future of jobs. They talk about, gives you some insight. Tell that lady to go fast, I'll be late. Please help, very much.

What the hell is going on?[02:29:00]

Even after this, people have problems picking problem statements. I'm at the bar. Get paid. When I first came to the waterfront, I was really terrified. Ha ha ha! Actually, I've told him, okay? It's a bit hot for this. Hot, hot, hot. I don't want, I don't want. I don't want to watch. What if, what if, what if Bro, take a piece of paper, write all your roll numbers and give it for autonomous.

Give it to who? But, uh, sir told [02:30:00] like, give it in a paper form. She's taking it, she's telling him. Yeah, she's telling him. What if Automatically. Winced. Automatically. Is there a jack? Japan is there. But that has a separate button. What if I don't want that button separately for that? No. No. Here it's clear.

There's a machine. There's a machine. Water, forcefully water. Force of water. Isn't it? And then, and then the, the, the, what is this? What is this, bro? What is this? What is this? What is this? What is this? What is this? Sink. What is this? What is this called? Sink. Sink. That sink will also get cleaned. No, it won't.

Water, I can just use air to clean. Not water. And you won't feel cold? We are, we are Indians. We're used to, you know, actually washing, you know, wiping our asses. I have to use a bottle, you know, I have [02:31:00] to put a bottle, I have to put a bottle. You know, how many bottles? One is like, one. There's a machine operating.

It's like this, ok? It gives you a butthole, you see. I'll glue like this and I'll say water. No, that's too much. Why can't we just eliminate shitting? Yeah, why can't we just not eat anymore? No, eating I won't. No, eat, eat, eat exactly the food such that we won't eat it. How? You have to, you have to someday.

Maybe in a different form. No, no, no, no, no, think about it. What if, what if the food they're eating is exactly the things that you're eating? Okay, my bad. And then you have to take tablets. I'm telling you. Sir, sir, [02:32:00] attendance. I want her to. Paper. Paper. Paper. She will take.

I 1 0 2 7. More reaction?

I 1 0 4 Cs 23 A one zero I 1 0 1 4.

I 1 0 2 9.[02:33:00]

I'll come after 7 only. Why? I have this partnership. Class, ah? Partner. I5. Harvesting, ah? I0. I005. One thousand. Shortcut me whoever says na, I'll not give attendance. Say, uh, Say, IRB, end of four digits. Bharat Darsh. Tell him. Say. I want to go. I want to bring leaves and then for Please hide the flowers. I will read the borrowing statement.

I'm going in a minute. She's asked you, she's called me to dinner, sir. We'll review our schedule. He switched later. He locked his [02:34:00] night out. He locked his night out. Switched, switched. You know. Where? What's that, love? Nothing love. Prasanna Kumar.

We can actually do that. They don't want attendance. What did he say? Attendance. Me part. Okay, so, look, we went outside. We offed this bitch outside. We went back. We came after half an hour. The bitch was on outside. We offed it again and we went back. And he didn't come outside. You can't go. What's in it, Harit?

It's Casey laptop, Uhhuh.[02:35:00]

My name

I have not designed

even Pian was there when you opt to switch.

Those teams we have reviewed can leave. And if not, then you can stay back. Tell them attendance and then go. Attendance, tell them, go. Why is my mother here? Where? You didn't write mine. Mom knows, she took notes. Hey, man, are you here? [02:36:00] Mom, take care. You have to be very careful. Very important, very important.

You have to be very careful. Not as long as you want to be. You want to be more or less, or more or less. You can't be more or less. You can't be more or less. You can't be more or less. Okay, I got it, I got it. You have to be very careful. What do you want with this? We already discussed it. Sometime you have to go talk to Karthik.

We'll go fix the time slot. Not today. We'll go talk to [02:37:00] him.