[Rebecca Hawthorne] 18:57:45

. Yep

[Mark Hoyt] 18:57:46

Thank you.

[Jeremiah Lowhorn] 18:57:50

Welcome back, Sue.

[Jeremiah Lowhorn] 18:57:56

Oh, the chiefs in the Steelers, huh? Where who are you rooting for?

[Sue Susman] 18:58:01

I've been a Steelers fan for a gazillion years. I became a Chiefs fan.

[Sue Susman] 18:58:05

Very recently, so both right now. As it gets closer, we'll see who's in the lead.

[Jeremiah Lowhorn] 18:58:11

I mean, the homes is unstoppable so I can understand. That's, that's an easy bandwagon to jump on.

[Sue Susman] 18:58:18

Of course.

[Jeremiah Lowhorn] 18:58:19

Yeah.

[Mark Hoyt] 18:58:19

As a lifelong Bengals fan, I, Do not like the cheese.

[Jeremiah Lowhorn] 18:58:25

Yeah. My group, I grew up in Indianapolis and obviously, I mean, if you if you follow in FL and follow the Colts, it's just a dismal situation there right now.

[Mark Hoyt] 18:58:35

Yeah, not a good time.

[Jeremiah Lowhorn] 18:58:36

So it's

[Sue Susman] 18:58:36

Yeah. I'm too.

[Jeremiah Lowhorn] 18:58:38

No. Running backs holding out on the pup list. It's embarrassing.

[Mark Hoyt] 18:58:43

Okay.

[Sue Susman] 18:58:44

No, I'm I'm doing 2 fantasy football leagues this year. We're drafting this week.

[Sue Susman] 18:58:52

Can't wait.

[Jeremiah Lowhorn] 18:58:52

Yeah, sounds fun. I tried that a couple times. It just wasn't for me.

[Sue Susman] 18:58:58

Oh my god, I love it. Takes up a bit of time, but I do love it.

[Jeremiah Lowhorn] 18:59:00

Yeah Yeah. Being a Hoosier, I've done a lot of brackets in CWA tournament brackets and I've actually won those a few times and That's what I really like doing is the bracketology and all the basketball stuff.

[Sue Susman] 18:59:14

Oh, so I'm not a basketball person.

[Jeremiah Lowhorn] 18:59:17

I mean, being from Indiana, you have to be, right? So they teach it in the schools.

[Jeremiah Lowhorn] 18:59:23

Like, it's such a big deal in Indiana that a whole week in the spring semester or the kind of the spring semester or whatever you call it.

[Jeremiah Lowhorn] 18:59:32

You have basically that whole week to do like field days and learn about basketball and play basketball. It was crazy.

[Jeremiah Lowhorn] 18:59:39

I mean, that's how big basketball is in Indiana. So.

[Sue Susman] 18:59:44

I lived in Indiana for almost a year. What's that college in Indiana?

[Jeremiah Lowhorn] 18:59:52

I you, Purdue? For you. Okay. I almost went to Purdue.

[Sue Susman] 18:59:52

Off again. Yeah, I lived in for almost a year. I, yeah. Thank you.

[Jeremiah Lowhorn] 19:00:01

Yeah, I decided to go to ball state instead. Purdue wanted me because I applied so late they didn't have any room I guess on campus so they wanted me to go to like their north campus and I said no I'm gonna go to ball state and just do math because I don't like science.

[Sue Susman] 19:00:16

Yeah. Yeah.

[Jeremiah Lowhorn] 19:00:17

Okay. Okay, it is 60'clock. I recognize each of you. I don't think that there's anybody new.

[Udumaga Onyeukwu] 19:00:19

Thank you for.

[Udumaga Onyeukwu] 19:00:24

Oh, Okay.

[Jeremiah Lowhorn] 19:00:27

To me at least in this class. I think I've had all of you from my 5 0 0 2 class, which is exciting.

[Udumaga Onyeukwu] 19:00:33

Not a yeah.

[Jeremiah Lowhorn] 19:00:34

It's like glad to have you. You've heard my feel before why I do this

[Udumaga Onyeukwu] 19:00:40

Hello

[Udumaga Onyeukwu] 19:00:42

Yeah. Yeah. Good job.

[Jeremiah Lowhorn] 19:00:42

I really enjoy it. I'm sorry.

[Sue Susman] 19:00:46

Odimaga, FREEMAN MOVE.

[Jeremiah Lowhorn] 19:00:52

Yeah, I don't need to talk about myself, so I'll stop right there. I'm sorry.

[Jeremiah Lowhorn] 19:00:58

Okay, so let's dig in so this is 62 10 this is big data SQL structured query language and no SQL or more formally non-relational databases.

[Jeremiah Lowhorn] 19:01:12

No, no SQL is more of a slang term. It's not really an official term.

[Jeremiah Lowhorn] 19:01:18

It was I guess coined in a tweet back in 14 or 15. And that's how it started being called No Sequel.

[Jeremiah Lowhorn] 19:01:27

It's really non relational databases. They've been around a lot longer than that. That's just when it started gaining prominence.

[Sue Susman] 19:01:32

Oh, I have a. I have a dumb question. What is, what is Microsoft access?

[Jeremiah Lowhorn] 19:01:32

So we're gonna do 4, yes.

[Jeremiah Lowhorn] 19:01:35

Yep.

[Sue Susman] 19:01:40

What kind of a database is that?

[Jeremiah Lowhorn] 19:01:41

That is a relational database. I've never used it. So if you ask me any questions on it, I'm not going to be able to answer them.

[Sue Susman] 19:01:47

I haven't used it in years, but I have used it. I was just curious.

[Jeremiah Lowhorn] 19:01:52

Yeah, it is a relational database and we're gonna talk about the different types of relational databases.

[Jeremiah Lowhorn] 19:01:59

See you've all had my course before 5 0 0 2 you know my philosophy you know how I do things you know how I am with kind of late assignments and that thing.

[Jeremiah Lowhorn] 19:02:12

Make sure, you know, the course should be completely released to you. Go get it, get it done is, you know, obviously at your own leisure.

[Jeremiah Lowhorn] 19:02:18

We'll have these kind of week weekly sessions where we, you know, clarify questions.

[Jeremiah Lowhorn] 19:02:23

Where we kind of go over things, we'll go over homework. And that, that sort of thing.

[Jeremiah Lowhorn] 19:02:29

I'm gonna go over the PowerPoint tonight, just hit some high points. We'll dive into Postgres.

[Jeremiah Lowhorn] 19:02:35

Show you around there and then talk about kind of whatever you guys think we need to talk about whatever we need clarify So there's 2 projects again in this course.

[Jeremiah Lowhorn] 19:02:45

There's a data modeling project. And then a data model implementation project. Structured just like we had the Python in our course, the first ones, excuse me.

[Jeremiah Lowhorn] 19:02:55

Do I believe in week 5? The second ones do at the end of the course. You should be able to start working on project 2 right after week 4 as long as you're doing everything in SQL.

[Jeremiah Lowhorn] 19:03:07

I changed it up this time. I originally had intended to do a no SQL project, but after some feedback you all gave me about kind of the Python project and being crunched at the end, I decided to switch it around and focus on data modeling and then doing the implementation.

[Jeremiah Lowhorn] 19:03:25

So both of these projects kind of work together, design the database and then do the implementation as the second project.

[Jeremiah Lowhorn] 19:03:34

Labs, we're going to be doing labs every week. Discussions every week.

[Jeremiah Lowhorn] 19:03:39

Something new is I I'm very big on database theory and understanding the theory behind databases. This isn't just a coding class.

[Jeremiah Lowhorn] 19:03:49

You're gonna be required to understand some you know theories of why you should use no SQL why you should use relational models maybe big tables distributed systems etc.

[Jeremiah Lowhorn] 19:04:00

So there are quizzes there. Each week there are 1010 questions each. I pulled the questions directly out of the PowerPoints.

[Jeremiah Lowhorn] 19:04:12

So the answers as long as you're going through the material, you're listening to the lecture videos, your reading. The question, the answers are there.

[Jeremiah Lowhorn] 19:04:20

I'm not, you know, there's no trick questions, if you will. So as long as you're, you know, doing the work as expected and required, you'll do fine on those quizzes.

[Jeremiah Lowhorn] 19:04:30

So kind of the important dates this time around. So 828, your last day to drop.

[Jeremiah Lowhorn] 19:04:35

I'm sorry, first day of class. 9 5 is your last day to drop. 16, you can get a W.

[Jeremiah Lowhorn] 19:04:43

And then 1020 is the last day of classes. This is a very busy class.

[Jeremiah Lowhorn] 19:04:50

There's a lot of material. This is by no means an easy class. In fact, it's probably going to be quite hard for several people.

[Jeremiah Lowhorn] 19:05:00

A lot of people that, you know, may already have SQL, they're still going to be a lot of new concepts, right?

[Jeremiah Lowhorn] 19:05:06

I'm not just teaching structured query language. I'm teaching, advanced database concepts and theory.

[Jeremiah Lowhorn] 19:05:14

So keep that in mind too. There's going to be kind of that application on top of the coding that you're going to have to do.

[Thomas Dinh] 19:05:22

Quick question, Professor. Sorry, I'm sorry.

[Jeremiah Lowhorn] 19:05:23

You

[Jeremiah Lowhorn] 19:05:26

Yep, no problem.

[Thomas Dinh] 19:05:27

I was just wondering about the textbook. Is there an online textbook or anything? Mine won't live for a while.

[Jeremiah Lowhorn] 19:05:30

Okay.

[Jeremiah Lowhorn] 19:05:33

Yeah, no, I couldn't find it online. So this is the textbook that I used in my graduate program for my advanced database and information retrieval.

[Jeremiah Lowhorn] 19:05:48

I really like this book. I liked it then. I liked it now. It's very, applicable even today.

[Jeremiah Lowhorn] 19:05:55

I don't know of a place where you can get it as a PDF or anything like that.

[Jeremiah Lowhorn] 19:05:59

I've had this book since 2017. So, I think you can get on Amazon.

[Jeremiah Lowhorn] 19:06:07

I don't know how much it runs anymore. but you will need to get this book in order to do the assignments week one through 4.

[Jeremiah Lowhorn] 19:06:15

Yes.

[Sue Susman] 19:06:16

So if you buy the hard, the hardcover book, it's about a hundred $50. You can get.

[Jeremiah Lowhorn] 19:06:20

Yeah, Okay, yeah, I have the soft right because when I was a anymore I buy the hard covers.

[Sue Susman] 19:06:22

Stock cover book for about 38 on Amazon.

[Thomas Dinh] 19:06:29

Thank you, thank you.

[Jeremiah Lowhorn] 19:06:35

So, I'll probably end up getting the hard cover for this one eventually just because I'm, I can, I plan on continuing to use it.

[Jeremiah Lowhorn] 19:06:43

Because it really is a great book. Hmm. Okay. So kind of the structure of the class this week, we're going to introduce you to database.

[Jeremiah Lowhorn] 19:06:52

Management systems DBMS. When to use them, what are the advantages of them, data model, schemas, instances, language interfaces.

[Jeremiah Lowhorn] 19:07:00

And kind of the different classifications of database management systems. We choose when we started to get into relational databases.

[Jeremiah Lowhorn] 19:07:08

We're going to talk about what a relation is. We'll briefly talk about it in week one.

[Jeremiah Lowhorn] 19:07:13

But really understanding what those relationships mean will start to understand how to do, crows foot ERDs, which is a special ERD that your book actually doesn't talk about.

[Jeremiah Lowhorn] 19:07:26

That's the only Part of the book that I don't like is how they introduce you to so I'm introducing you to something called, which is kind of the expectation and how you should design these.

[Jeremiah Lowhorn] 19:07:39

We'll talk more about why that is if you've watched the lecture you probably picked it up

[Jeremiah Lowhorn] 19:07:46

Constraint violations then week 3 will start getting into actual SQL writing inserts, updates, deletes.

[Jeremiah Lowhorn] 19:07:53

Very basic, retrieval queries. Week 4, we're gonna get into more advanced query, sub queries.

[Jeremiah Lowhorn] 19:08:01

CTEs. Joins, unions, triggers, case statements, views.

[Jeremiah Lowhorn] 19:08:07

I do need to add. There is a portion of the data science interview that I still need to add to this.

[Jeremiah Lowhorn] 19:08:15

So will most likely become between week 3 and week 4. You're not going to be quizzed on it.

[Jeremiah Lowhorn] 19:08:21

You're not going to be, it's not going to be part of a lab or anything like that.

[Jeremiah Lowhorn] 19:08:24

It's not going to be any additional, you know, work, I guess. But as a concept you'll need to understand for interviews and that's window functions.

[Jeremiah Lowhorn] 19:08:34

For whatever reason your book didn't cover them and when I built the course I didn't add it in so I'm gonna add it in.

[Jeremiah Lowhorn] 19:08:42

I haven't decided if it's gonna be in week 3 or week 4 yet. I might give it in week 3 because it'll be a little bit lighter.

[Jeremiah Lowhorn] 19:08:47

Of the week. So keep that in mind, we will cover window functions just because. You need them.

[Jeremiah Lowhorn] 19:08:55

Week 5, we're gonna get into non relational databases with Mongo dB.

[Jeremiah Lowhorn] 19:08:59

We're using kind of their handouts, right? This is a lot of reading that you're, gonna need to do.

[Jeremiah Lowhorn] 19:09:06

This is a lot of reading that you're, you're going to need to do.

[Jeremiah Lowhorn] 19:09:07

The nice thing is these handouts are very visual in nature. So maybe less reading than you might assume if it's 20 pages maybe 5 or 6 pages of it is actual reading right.

[Jeremiah Lowhorn] 19:09:19

Hmm. We're gonna set up a Mongodb in the cloud with Atlas. Using their free tier and then we're gonna kind of create a connection and all of your Mongodb homeworks will be turned in as Python notebooks.

[Jeremiah Lowhorn] 19:09:35

Kinda like we did with the Python course. So I'll show you how to set up the connection to your Atlas cloud account.

[Jeremiah Lowhorn] 19:09:43

And you'll be able to do all the coding in Python. So that's week 5 week 6.

[Jeremiah Lowhorn] 19:09:51

We get into more of the data modeling concepts behind no SQL non-relational databases.

[Jeremiah Lowhorn] 19:09:58

Week 7 we get into you know querying it's supposed to week mere week 3 basic MQL queries and then week 8 we're gonna off kind of finish with the aggregation framework, which is kind of the advanced.

[Jeremiah Lowhorn] 19:10:11

It's not aggregation as you would kind of think of it and you know, our Python when we learned how to do aggregation there with group buys.

[Jeremiah Lowhorn] 19:10:20

There are group eyes, but the aggregation framework, what it really does is expand MQL and into a lot, you know, I guess better syntax and easy to understand.

[Jeremiah Lowhorn] 19:10:30

So that's what we're gonna wrap up. The homework and mongo it should be pretty I don't wanna say easy, but it should be straightforward.

[Jeremiah Lowhorn] 19:10:41

Especially if you kind of watch the videos and watch my examples. Questions on the course itself for kind of anything here.

[Jeremiah Lowhorn] 19:10:55

Alright.

[Udumaga Onyeukwu] 19:10:55

Good able, the quizzes, would every time, how much time would we have for the pieces?

[Jeremiah Lowhorn] 19:11:02

I don't think they're time, they're 10 questions. If they are time, you find that they are time, let me know and I'll turn the timer off.

[Jeremiah Lowhorn] 19:11:10

Again, I don't build these in Canvas. That's a good question.

[Jeremiah Lowhorn] 19:11:14

I'll find that answer out after this course. I don't I didn't tell her to add a timer when she built the course.

[Jeremiah Lowhorn] 19:11:22

So if there is, I'll fix it. Just let me know.

[Jeremiah Lowhorn] 19:11:26

I don't think you should be timed. I mean, it's open book, obviously.

[Jeremiah Lowhorn] 19:11:31

I really the purpose of the quizzes are for you to understand the theory and the concepts, right?

[Jeremiah Lowhorn] 19:11:38

It's not like, you know, I give the example of the classic, law school kind of test, right?

[Jeremiah Lowhorn] 19:11:48

It's not like that. I don't believe in those types of tests, right? It's not like that.

[Jeremiah Lowhorn] 19:11:51

I, I don't believe in those types of tests, right? It's not like that. I, I don't believe in those types of tests.

[Jeremiah Lowhorn] 19:11:53

I don't believe in those types of tests. I don't believe in those types of tests. I don't believe in trick questions.

[Jeremiah Lowhorn] 19:11:55

I want you to understand the concepts. I wanted to include quizzes just, so you started to better understand the theory.

[Jeremiah Lowhorn] 19:12:01

And so that's why it's there. So that was a long winded way of saying they're not time, but they shouldn't be timed.

[Jeremiah Lowhorn] 19:12:11

Okay, so let me find and kind of last minute here I did upload all the materials into GitHub.

[Jeremiah Lowhorn] 19:12:22

It's kind of low one J that's where 5 0 0 2 was. 62 10 is now there.

[Jeremiah Lowhorn] 19:12:28

I removed all the answers. So sorry. Yes.

[Sue Susman] 19:12:32

So in the chat Rebecca put a link to the, to a PDF of the textbook.

[Sue Susman] 19:12:38

Not sure where you got it, but thank you very much.

[Jeremiah Lowhorn] 19:12:40

Fantastic. Very.

[Thomas Dinh] 19:12:41

I appreciate that. Thank you so much. I needed it.

[Jeremiah Lowhorn] 19:12:44

That'll save you 50 bucks. There you go.

[Rebecca Hawthorne] 19:12:44

Google.

[Jeremiah Lowhorn] 19:12:48

Yeah, that's the book. So this will suffice. I'll Save this and we'll add it to.

[Jeremiah Lowhorn] 19:12:56

And an announcement so that way that everybody has it. Thank you so much.

[Jeremiah Lowhorn] 19:13:01

Okay, so let me Find my PowerPoint. And kind of the same philosophy here, guys.

[Jeremiah Lowhorn] 19:13:12

Organize yourself, obviously create a 62 10 folder. Organize it through the best of your ability.

[Jeremiah Lowhorn] 19:13:21

So that way you're, organized and if you want to keep a GitHub, that's fine.

[Jeremiah Lowhorn] 19:13:26

So let me.

[Sue Susman] 19:13:30

Jeremiah, do we have any need to keep anaconda? Mine crashed and I never did get it back.

[Sue Susman] 19:13:36

So can I delete it?

[Jeremiah Lowhorn] 19:13:38

As long as you have. Hython and can use Jupiter for this course. Because

[Sue Susman] 19:13:42

And are you, for Python?

[Jeremiah Lowhorn] 19:13:47

Yeah, you'll need Python for weeks 5 through 6 because you're going to be doing the MQL queries in a Python.

[Jeremiah Lowhorn] 19:13:53

Jupiter Notebook and knitting back to PDF like we did for Python and 5 0 0 2.

[Sue Susman] 19:13:58

So I can do Python and an app called Replet, which I use in my classroom. That'd be okay.

[Jeremiah Lowhorn] 19:14:05

As long as you can turn in a PDF. And.

[Sue Susman] 19:14:07

Okay, I'll figure it out. Thanks.

[Jeremiah Lowhorn] 19:14:11

Yeah, there you go. Just don't send me a PI file where I have to download it and then put it in an interpreter and that I don't want to do that.

[Jeremiah Lowhorn] 19:14:22

I want to grade the PDF. That's why I have you turn in PDF.

[Jeremiah Lowhorn] 19:14:25

It's easier on me. I've got to, I've got 2 classes, too many students to grade.

[Jeremiah Lowhorn] 19:14:29

If I've got to download things, I get frustrated. So. Alright, so week one, intro to database management system.

[Jeremiah Lowhorn] 19:14:36

So what is a database management system? Why do we use it? So there's several different used cases.

[Jeremiah Lowhorn] 19:14:43

When you've got a bunch of interrelated data data that has some type of relation to another, maybe it's living and Excel workbooks for whatever reason or just see see CSVs on a shareholder somewhere.

[Jeremiah Lowhorn] 19:14:57

That is an excellent application or reason to start using a database. You've got users who need to access the data in some way and you've got, you know, data that should be stored, backed up.

[Jeremiah Lowhorn] 19:15:10

And properly defined for those users, right? Applications also. So if you've got like web applications or, you know, software applications, typically they have some type of data.

[Jeremiah Lowhorn] 19:15:24

With them, even, you know, if you're logging in, there's a user username and password database.

[Jeremiah Lowhorn] 19:15:32

Typically those are stored in no SQL databases. But there's all sorts of different use cases for why you should need a database.

[Jeremiah Lowhorn] 19:15:41

Transactional systems, you know, banks. On things like that. Considerations and this is really important.

[Jeremiah Lowhorn] 19:15:48

You don't wanna just take data and start building a database, right? That's why we learned database theory.

[Jeremiah Lowhorn] 19:15:54

These considerations need to be, you know, Considered before you start building. So what are those considerations data type structures constraints all of that needs to be understood ahead of time.

[Jeremiah Lowhorn] 19:16:07

How long you need to store the data, how long you're gonna store it on disk if you're storing it in the cloud and you're storing it on disk forever, you're gonna end up paying a lot of money, S 3 storage costs for that data in the cloud that's probably doing nothing.

[Jeremiah Lowhorn] 19:16:20

So you need to be able to define a retention policy for that data. What types of queries will be executed?

[Jeremiah Lowhorn] 19:16:28

You need to know how your users are going to use the data, because you're probably going to want to design, indexes or partitions or, some other methods so that they can quickly extract the data and write efficient queries.

[Jeremiah Lowhorn] 19:16:40

Maybe you just create views for them and they, you know, extract the data from the news.

[Jeremiah Lowhorn] 19:16:46

Security constraints. I'm not a security guy honestly, but, that is something to consider.

[Jeremiah Lowhorn] 19:16:53

Is there any kind of NPI non public personal information I believe is what that stands for? That you need to mask right so security numbers you don't wanna just be able to get to a table and see, you know, somebody social, you probably want a way to mask that.

[Jeremiah Lowhorn] 19:17:11

There are ways of masking that data in a database. So security needs to be considered.

[Jeremiah Lowhorn] 19:17:15

David, data privacy needs to be considered and then obviously scale. How much data is it can it fit in a relational database on a single server or do we have billions or trillions of rows and do we need a distributed system, a file system to distribute that data on multiple servers.

[Jeremiah Lowhorn] 19:17:33

So all of these are considerations that are very important, when kind of starting on the path of storing data in a database.

[Jeremiah Lowhorn] 19:17:42

Stages and this is very important, right? I have seen Many companies skip these stages and then it cost them millions of dollars.

[Jeremiah Lowhorn] 19:17:54

I know of a company very recently has gone through this, right? So when you're designing a database, when you're designing any kind of software, and you know, this SRS concept is something you would learn in like an information systems management course.

[Jeremiah Lowhorn] 19:18:09

We're not gonna go too deep into the weeds there. But it stands for software requirement specification.

[Jeremiah Lowhorn] 19:18:17

Typically you would have a project manager or you know a business analyst start to put this together define user requirements define how the database should work what it should do, how it will be used, etc.

[Jeremiah Lowhorn] 19:18:30

Once you have an SRS, that's when you get into kind of the conceptual design.

[Jeremiah Lowhorn] 19:18:35

And the logical design, now your book does kind of split conceptual and logical. When I do it, I just blend them together, right?

[Jeremiah Lowhorn] 19:18:45

There's really no need if you do the right ERD to have both. But they are 2 different kind of concepts.

[Jeremiah Lowhorn] 19:18:51

So conceptual design, your book uses kind of the ERDs in the fashion that they use them that I don't particularly like.

[Jeremiah Lowhorn] 19:18:59

And again, that's the only knock I have on the book. So that's the last time you'll hear me complain about that.

[Jeremiah Lowhorn] 19:19:04

Logical design. That's when you get into more of the flow charge, the kind of the data models, how things move around, etc.

[Jeremiah Lowhorn] 19:19:12

Then you get into the physical design and really that's the implementation building, maintaining it, writing the DDLs, writing the ETLs.

[Jeremiah Lowhorn] 19:19:20

All of that fun stuff. Okay, so we're gonna spend a lot of time, a whole week.

[Steven Uzupis] 19:19:24

Sorry, Are there presentations that we're supposed to be looking at? Going or we just looking at the

[Jeremiah Lowhorn] 19:19:25

Modeling. Yes.

[Jeremiah Lowhorn] 19:19:33

Why not sharing my screen again?

[Steven Uzupis] 19:19:36

I see the.

[Sue Susman (she | her)] 19:19:37

It's still up.

[Steven Uzupis] 19:19:39

. Yeah

[Jeremiah Lowhorn] 19:19:40

Goodness gracious, thank you. Yeah. I think I did this in 5 0 0 one yesterday.

[Sue Susman (she | her)] 19:19:42

I was just that same thing. Thank you for asking.

[Steven Uzupis] 19:19:45

Yep.

[Jeremiah Lowhorn] 19:19:48

Let me see. I am the worst person in the world at sharing screens.

[Sue Susman (she | her)] 19:19:50

Are you teaching? 50010 my god, they are so lucky. Yay!

[Jeremiah Lowhorn] 19:19:56

Hey, what about? Can you see the PowerPoint now?

[Steven Uzupis] 19:20:02

Not yet.

[Jeremiah Lowhorn] 19:20:04

Okay, well let me stop.

[Jeremiah Lowhorn] 19:20:08

It's crazy. I've done this 3 times in the past 2 days. Green 2.

[Sue Susman (she | her)] 19:20:11

Okay.

[Steven Uzupis] 19:20:11

Okay.

[Sue Susman (she | her)] 19:20:15

Yay!

[Jeremiah Lowhorn] 19:20:16

Okay, perfect. I don't know how my escapee got out of my gate upstairs, but she's out again.

[Jeremiah Lowhorn] 19:20:24

If you were in my 5 0 0 2 class last semester, there were some. Fun evenings so okay so stages i talk about this briefly we're going to kind of marry the conceptual and logical design do understand kind of what your books talking about here and how these work.

[Jeremiah Lowhorn] 19:20:44

When we get into kind of more practical implementations, you know, Let's be honest, give me an ERD, tell me how the data is gonna flow and kind of the model so we kind of marry these 2.

[Jeremiah Lowhorn] 19:20:55

Types of databases so there's relational databases that's what we're going to spend the first 4 weeks on.

[Jeremiah Lowhorn] 19:21:01

Examples of relational databases. You have OLTP, which are transaction processing databases, and then you have OLAP, which are analytical processing, kind of the difference there.

[Jeremiah Lowhorn] 19:21:12

Oh, LTP is built for highly, concurrent transactions. So banks, right?

[Jeremiah Lowhorn] 19:21:19

You've got a lot of transactions happening on a bank ledger or some kind of financial system. That's what it will LTP for.

[Jeremiah Lowhorn] 19:21:26

OLAP is kind of for everything else. You're running, you know, business queries to extract some inside on the data.

[Jeremiah Lowhorn] 19:21:32

Most of the databases you're probably going to interact with are going to be OLAP systems, examples of relational databases, Oracle, PLSQL, I like PO SQL.

[Jeremiah Lowhorn] 19:21:45

I almost used it in this course. Decided to go to with Postgres which is open source and probably much easier to use than Oracle. Right.

[Jeremiah Lowhorn] 19:21:55

You don't want to you write PL sequel. It's a different dialect. It's probably a little bit harder.

[Jeremiah Lowhorn] 19:21:58

But Oracle has a lot of great features about it. And then there's my SQL.

[Jeremiah Lowhorn] 19:22:04

I don't have anything good to say about my SQL. No, SQL.

[Jeremiah Lowhorn] 19:22:11

So no SQL or non relational databases. 2 popular ones are Mongodb and Couch Space.

[Jeremiah Lowhorn] 19:22:19

I've used both of those. Couch base uses an SQL syntax.

[Jeremiah Lowhorn] 19:22:23

So instead of kind of writing the query like you would in Mongo dB, you're actually writing SQL, which a lot of people like.

[Jeremiah Lowhorn] 19:22:32

Couchbase, it's really easy to set up clusters. It's easy to manage clusters.

[Jeremiah Lowhorn] 19:22:36

One of the big differences between Mongo, dB, and couch base. Is that couch space has something called memcache.

[Jeremiah Lowhorn] 19:22:43

What MINCASH does is cash. Your data in memory. So it's highly available.

[Jeremiah Lowhorn] 19:22:51

Your queries run much faster because you're just querying memory instead of disk. And so that's kind of couch space versus Mongo dB.

[Jeremiah Lowhorn] 19:23:01

Right now I'm implementing a production cache base cluster at Samsung. So I'm very familiar with Couch Space.

[Jeremiah Lowhorn] 19:23:09

We're using Mongodb for this course. It's a fantastic database. They've got a lot of great materials.

[Jeremiah Lowhorn] 19:23:14

I really like their MQL and aggregation pipeline. It was just more practical to do a couch face implementation of Samsung.

[Jeremiah Lowhorn] 19:23:23

So. Both great. No SQL databases. There are others outside of these lists.

[Jeremiah Lowhorn] 19:23:29

This is just what I'm very familiar with. Graph databases, Neo 4 J, there are others.

[Jeremiah Lowhorn] 19:23:35

I don't have a lot of experience with graph databases. Mongo dB actually has graph capabilities.

[Jeremiah Lowhorn] 19:23:41

So you can do some light. Graph database operations with Mongo. Big data in Hadoop, we're gonna be, you know, kind of teaching that course in the summer.

[Jeremiah Lowhorn] 19:23:53

I'll be teaching that one. So kind of examples of Hadoop data bricks, which has their own kind of version, much more evolved version of Hadoop and then classical Hadoop.

[Jeremiah Lowhorn] 19:24:06

What is Hadoop? It's just really a file system, HDFS, right?

[Jeremiah Lowhorn] 19:24:12

So, I don't remember what HD stands for, but FS is obviously file system.

[Jeremiah Lowhorn] 19:24:20

It's basically a way of storing files in a distributed manner. And then being able to query those.

[Jeremiah Lowhorn] 19:24:27

Files with structure query language. Like Hive or using a more programmatic approach like Spark.

[Jeremiah Lowhorn] 19:24:33

So the big data class we're going to be using Spark to do everything on data bricks.

[Jeremiah Lowhorn] 19:24:39

That

[Sue Susman (she | her)] 19:24:40

Jeremiah, when are, what term are you teaching that in the summer?

[Jeremiah Lowhorn] 19:24:44

Summer 1, 24.

[Sue Susman (she | her)] 19:24:46

Yeah.

[Jeremiah Lowhorn] 19:24:48

Sorry. I still haven't built the course, so, but those are 2 examples of kind of distributed file systems.

[Jeremiah Lowhorn] 19:24:58

There are others. These are probably the most popular. I think many of you who are kind of in the data science community already have probably heard a data bricks.

[Jeremiah Lowhorn] 19:25:08

It's they're huge. So that's what we're gonna use.

[Jeremiah Lowhorn] 19:25:13

Characteristics of the database management approach. So. Really and I can already describe this really you want to start to collate all of the data that maybe related to each other into some type of database.

[Jeremiah Lowhorn] 19:25:29

Whether it be a relational database where you have individual relations. Or a note SQL database where everything is kind of combined into a single document.

[Jeremiah Lowhorn] 19:25:41

That's really, you know, kind of the number one characteristic. You have a schema inside that schema.

[Jeremiah Lowhorn] 19:25:48

All the tables are somehow related to each other.

[Jeremiah Lowhorn] 19:25:51

In theory. It's also self-describing, right? So the DDL is the create statements.

[Jeremiah Lowhorn] 19:26:02

DL stands for data definition language. Definition, you're defining the table, so you're creating it, you're altering it, you're dropping it, truncate, comment, rename.

[Jeremiah Lowhorn] 19:26:11

It's the easiest way to kind of remember that acronym. Data definition, you're defining the data.

[Jeremiah Lowhorn] 19:26:17

Data markup. Language, I believe, or manipulation language. I'm sorry.

[Jeremiah Lowhorn] 19:26:22

I forget that one. Manipulate. So select insert, you're changing something about the data, deleting it.

[Jeremiah Lowhorn] 19:26:29

Merge call explain lock DCL Grant Revoke and then transactional commit roll back save, and then, transactional, commit, roll back, say, point except transactions.

[Jeremiah Lowhorn] 19:26:45

So those are different types of languages. So those are different types of languages. So those are different types of languages. DDLs and DMLs are probably what you need to know.

[Jeremiah Lowhorn] 19:26:56

Dcls and TCLs. I've been doing this a long time and I use commit statements obviously, but, I don'

[Jeremiah Lowhorn] 19:27:00

It does allow you a installation between your programs and data. You don't wanna build a piece of software that manages data.

[Jeremiah Lowhorn] 19:27:07

You know, by itself. You really want that piece of software to just be able to access the data in some way and then use it, display it, graph it, you know, whatever you're doing at a dashboard or whatever you're doing with that data.

[Jeremiah Lowhorn] 19:27:18

So it provides that in installation.

[Jeremiah Lowhorn] 19:27:23

And you know the the application itself doesn't have to handle those changes the database will do it with ETLs, instead of doing it in the app design.

[Jeremiah Lowhorn] 19:27:33

Supporting a multiple views of the data, there's a hundred different ways of looking at data.

[Jeremiah Lowhorn] 19:27:38

You can create news on top of your tables to. You know, aggregate or do something with the data, then allow the users to access that.

[Jeremiah Lowhorn] 19:27:48

And then it allows to share. The data across a multi-user environment and allows for, concurrent transactions.

[Jeremiah Lowhorn] 19:27:59

So someone could be, you know, doing an altar table on a specific row in a database while someone's trying to query it.

[Jeremiah Lowhorn] 19:28:07

There's something called concurrency control. Which will kind of stop both of those transactions from happening at the same time one user will be able to read that data while the other, you know, is able to alter that data and somehow and then once that altars finished that person would have to reread the data, that person would have to reread the data, etc.

[Jeremiah Lowhorn] 19:28:30

So there's safeguards in place, that person would have to reread the data, etc.

[Jeremiah Lowhorn] 19:28:33

So there's safeguards in place so that no 2 people can do or, a altar on the same rope simultaneously.

[Jeremiah Lowhorn] 19:28:37

Because you would kind of get different versions of the database at the same time and you don't want to do that.

[Jeremiah Lowhorn] 19:28:44

So databases have this concept of concurrency control built in. Then there's also, you know, atomicity, consistency, isolation and durability.

[Jeremiah Lowhorn] 19:28:53

The database has to be durable. You know, you don't want a loss of data for whatever reason you want it backed up.

[Jeremiah Lowhorn] 19:28:58

Transactions are isolated. Each transaction happens. And then, its own, place at that one time.

[Jeremiah Lowhorn] 19:29:07

Consistency the databases at a consistent state where you don't have 2 versions of the data. And then you have this concept of atomicity or, you know, kind of transactions being, again, kind of isolated.

[Jeremiah Lowhorn] 19:29:23

To that one, I guess, transaction. Okay, so advantages. Redundancy control.

[Jeremiah Lowhorn] 19:29:32

So when we talk about relational databases, what we really are getting into is reducing data redundancy.

[Jeremiah Lowhorn] 19:29:40

Okay, let me.

[Jeremiah Lowhorn] 19:29:44

And what we mean, my, reducing data redundancy, it's called data normalization.

[Jeremiah Lowhorn] 19:29:51

Basically each table in a schema or collect scheme as a collection of tables, each table in a schema would be deduplicated.

[Jeremiah Lowhorn] 19:30:02

In a way where you don't have any kind of duplicate records. And you would have relations between them so if you see here we have course ID is what's called a forward key of this table, the student ID is the primary key, course ID, can be kind of joined to this table.

[Jeremiah Lowhorn] 19:30:22

The only redundancy here is CS one, CS one, CS one, but this maps to kind of the course duration and instructor and what that does is reduce.

[Jeremiah Lowhorn] 19:30:33

The the disk space it compacts the disk makes the database much more storage efficient And that's why we really do data normalization.

[Jeremiah Lowhorn] 19:30:43

To reduce the overall amount of disc we're using. Now, as you'll see when we get into, I think it's week 4 is home.

[Jeremiah Lowhorn] 19:30:51

H, that can create a lot of problems in of itself when you have to join a hundred different tables to get what you're looking for.

[Jeremiah Lowhorn] 19:31:00

So there are other ways and more modern approaches to database design. Outside of the relational model.

[Jeremiah Lowhorn] 19:31:08

We might talk about those 2 kind of in week 3 and week 4. But kinda for the first Excuse me, first 4 weeks we're gonna be talking about data normalization controlling redundancy and relational models.

[Jeremiah Lowhorn] 19:31:22

Okay, there's more than one way of doing it, but this is theoretically the most efficient way.

[Jeremiah Lowhorn] 19:31:28

It can just not, it, sometimes it's just not practical, okay? Efficient search.

[Jeremiah Lowhorn] 19:31:36

So when users access a data database, they want to be able to quickly do retrieval queries, right?

[Jeremiah Lowhorn] 19:31:42

So how does a database handle that? Well, there's something called an index and I believe Confirm that I posted the video as an announcement where I actually get really deep into indexes.

[Jeremiah Lowhorn] 19:31:54

We start talking about B-trees and partitions kind of at a granular level. But indexes have a data structure kind of under the covers called the, which allows the, kind of the search space for a single row to be significantly reduced.

[Jeremiah Lowhorn] 19:32:10

We kind of talked about some of those kind of efficient data structures and the Pfizer 0 2 class when we talked about hash maps we didn't talk about B trees.

[Jeremiah Lowhorn] 19:32:19

Be trees are more efficient and typically are what are used for indexes and databases. If you didn't have an index, what you would have to do if there's a thousand rows.

[Jeremiah Lowhorn] 19:32:30

The database would scan all 1,000 rows to find whatever rows you're looking for. With an index it would know where those rows are and would only need to scan the B tree index.

[Jeremiah Lowhorn] 19:32:43

Which is far more efficient I think it's oh log in I believe time complexity.

[Jeremiah Lowhorn] 19:32:51

Partitions are different so we kind of talked about how distributed systems are on a file system. Partitions partition those files into different folders.

[Jeremiah Lowhorn] 19:33:05

Instead of creating an index. So instead of, having a large file, you can put, you know, labeled data, maybe each file has a specific date and then you query the file name which is that date.

[Jeremiah Lowhorn] 19:33:17

It'll navigate to the files. Containing that data. Just a second, please.

[Jeremiah Lowhorn] 19:33:23

Someone's at my door. I don't know if you can hear.

[Jeremiah Lowhorn] 19:33:27

Okay, so that is partitioning. cashing, I briefly talked about this with cash, couch base.

[Jeremiah Lowhorn] 19:33:33

Couch space uses something called memcache, which caches the data in memory. So you're accessing the data from memory as opposed to going to disk and then scanning the disk.

[Jeremiah Lowhorn] 19:33:43

Far faster queries when you have, data cache and memory, obviously, right? Sharding sharding is basically partitioning.

[Jeremiah Lowhorn] 19:33:53

That's what Mongo dB calls partitioning. Really no difference between the 2.

[Jeremiah Lowhorn] 19:34:02

Integrity constraints. Dat databases do have constraints. One of them being referential integrity.

[Jeremiah Lowhorn] 19:34:11

We're going to talk about, these constraints in week 3 and week 4, I believe.

[Jeremiah Lowhorn] 19:34:16

What these do is ensure that if you've got, you know, kind of going back to this, if you've got CS one here, it has to be in the course table with the course information listed.

[Jeremiah Lowhorn] 19:34:30

If it's not, it breaks that referential integrity and it's gonna throw an air.

[Jeremiah Lowhorn] 19:34:34

So when we're talking about referential integrity, that's what we mean. If we're defining CS one here, it also has to be in the lookup table.

[Jeremiah Lowhorn] 19:34:42

Okay, let's go back here. So that's what we mean by referential integrity and others other integrity constraints that we'll talk about later, in the course, but just be aware that, you know, that's one of the advantages of using database systems is ensuring certain things are happening in the data base and you know the state is right.

[Jeremiah Lowhorn] 19:35:05

More, more advantages. Those are kind of the big ones here, redundancy, efficient search, integrity. There's more advantages.

[Jeremiah Lowhorn] 19:35:14

These are, you know, important. Maybe they're not as important according to me. Access controls user permissions so you can have user accounts that are only reads you can have admin accounts which are rewrite and execute or you could have accounts that are read and write.

[Jeremiah Lowhorn] 19:35:31

Persistent storage for program objects we talked about classes in Python we talked about dictionaries in Python non relational databases are excellent for storing those types of data structures, right?

[Jeremiah Lowhorn] 19:35:45

That's not something you would store in a relational tabular database. So that's what we mean persistent storage for program objects, classes, dictionaries, etc, lists.

[Jeremiah Lowhorn] 19:35:56

I'm back up and recovery. Okay, so most databases, if not all, are supposed to be durable.

[Jeremiah Lowhorn] 19:36:02

So if you remember from acid transactions. The durability concept. Typically every database has some type of backup and recovery process.

[Jeremiah Lowhorn] 19:36:12

Big data systems have something. Called redundancy where they basically make a copy of the file on 2 different servers.

[Jeremiah Lowhorn] 19:36:20

And if one of those servers fails, the other the other is still available. So that's how big data systems happen.

[Jeremiah Lowhorn] 19:36:26

And happened to handle that. Relational databases are a little bit different because you're usually they're on a single node.

[Jeremiah Lowhorn] 19:36:36

They provide user interfaces, so we'll look at PG admin, relationships. We kind of talked about that with referential integrity.

[Jeremiah Lowhorn] 19:36:46

So kind of CS one from table A to CS one and table 2 where it kind of gave the description of what CS one met.

[Jeremiah Lowhorn] 19:36:54

Rules and triggers rules and triggers allow you to take action on the database when a specific event happens, say you're inserting data and for whatever reason the insert didn't have a person's last name.

[Jeremiah Lowhorn] 19:37:10

Well, you could create a trigger there or a rule and a stored procedure that says, Hey, you know, this person didn't have a last name and then it would kind of refuse that right and return an error to you.

[Jeremiah Lowhorn] 19:37:22

There's other you know triggers you can do if you wanted to build an anomaly detection system in a database you could do that with triggers.

[Jeremiah Lowhorn] 19:37:31

You know, so that's kinda what rules and triggers are for.

[Jeremiah Lowhorn] 19:37:36

Data models, schemas and instances. These are very, we kind of talked about the conceptual.

[Jeremiah Lowhorn] 19:37:43

Data model, which is the what the logical data model gets in a little bit more detail. We like to kind of combine and condense those.

[Jeremiah Lowhorn] 19:37:53

And then the physical data model really is the scheme on how the database is stored on the database.

[Jeremiah Lowhorn] 19:37:59

So you kind of start again with the business requirements. Typically it's an SRS, but most companies are going to be a little bit more informal than that.

[Jeremiah Lowhorn] 19:38:08

If they're being completely informal and you're involved in kind of someone building a database, make sure that they're at least modeling the data, doing some attempt at a model.

[Jeremiah Lowhorn] 19:38:18

If they're not you guys are gonna have a really bad time. So we're gonna hit we're gonna hit this pretty heavy next week, right?

[Jeremiah Lowhorn] 19:38:28

Instances and states. So what is a schema? I've mentioned the word several times.

[Jeremiah Lowhorn] 19:38:34

Think of a schema in a relational database as a collection of tables all related to one another. Now that's in theory when you get out into the real world you're gonna see schemas where they're gonna call it dev schema and it's gonna be 3,000 tables where they're gonna call it dev schema and it's gonna be 3,000 tables.

[Jeremiah Lowhorn] 19:38:52

None of them have any relationship with each other, right? That's not the right approach. That's not of them have any relationship with each other, right? That's not the right approach.

[Jeremiah Lowhorn] 19:38:57

That's not the proper approach, right? The proper approach, right? That's not the right approach. That's not the proper approach, right?

[Jeremiah Lowhorn] 19:39:01

The proper approach would be a schema containing all data related to a schema containing all data related to a schema containing all data related to graduate course would be, a schema containing all data related to, graduate courses, right?

[Jeremiah Lowhorn] 19:39:09

That is the true definition of what a schem But again, be aware when you go into the real world.

[Jeremiah Lowhorn] 19:39:13

People generally don't have these advanced database courses. And so schemas become whatever they define them to be.

[Jeremiah Lowhorn] 19:39:22

States instances, these are really kind of current, snapshots of the databases that's really all they are.

[Jeremiah Lowhorn] 19:39:33

A balanced state means that it's kind of satisfying all the, integrity constraints of the database.

[Jeremiah Lowhorn] 19:39:39

If you've got, you know, kind of referential checks. Other, you know,

[Jeremiah Lowhorn] 19:39:46

Constraints imposed on your data a valid state just means that a passes all of those constraints.

[Jeremiah Lowhorn] 19:39:53

And I need another drink.

[Jeremiah Lowhorn] 19:39:58

So we talked about, DDLs. So kind of the way to remember that is data definition definition, meaning you're defining the data.

[Jeremiah Lowhorn] 19:40:08

Create altar drop truncate comment rename right your doing something to define the data.

[Jeremiah Lowhorn] 19:40:17

Storage definition language we're probably not Really gonna dive deep into that one but it's another database language.

[Jeremiah Lowhorn] 19:40:29

VDL, we will. We'll talk about that in week 3 or 4 when we start talking about defining views.

[Jeremiah Lowhorn] 19:40:33

But that's the language really you used to create views on the data, right? If you're doing 300 joins, you probably don't want to do that every day.

[Jeremiah Lowhorn] 19:40:40

You probably want to create a view on top of those 300 joins so that the users can just access the view.

[Jeremiah Lowhorn] 19:40:48

Then finally there's the data manipulation. Language that's your select inserts, updates, and the easy way of remembering that is you're manipulating data that's already been defined.

[Jeremiah Lowhorn] 19:41:01

Right? So you go from DDL to DML. With some stuff in between.

[Jeremiah Lowhorn] 19:41:09

Interfaces so I attempted in this course to use Azure. I wanted to keep this course 100% in the cloud, but they asked for a credit card and I didn't want to give it to him so I abandoned Azure.

[Jeremiah Lowhorn] 19:41:23

So I need to clean up some of the stuff here related to Azure. But I originally I think after like 3 or 4 weeks they wanted to charge me so I had to go back and change everything to Postgres.

[Jeremiah Lowhorn] 19:41:35

So this is the screenshot of kind of what a database in Microsoft Azure would look like.

[Jeremiah Lowhorn] 19:41:41

This is the basic SQL Microsoft SQL database. So. And we'll actually pull up TG admin.

[Jeremiah Lowhorn] 19:41:51

And look at that user interface.

[Jeremiah Lowhorn] 19:42:01

It takes a couple of seconds. I should have started it before class because it's. Takes a hot minute.

[Jeremiah Lowhorn] 19:42:08

Any questions on any of this material? I went through it pretty quickly. I just kind of tried to hit the high points, hit the important for and I know a lot of this stuff is in the lecture materials.

[Jeremiah Lowhorn] 19:42:19

I go a little bit more in depth there.

[Jeremiah Lowhorn] 19:42:23

Anything you guys need clarity on. Well, PG admin fails to load.

[Jeremiah Lowhorn] 19:42:33

You know how long I have to wait for it to start, but.

[Phil] 19:42:38

Yeah, I think for me it's just like drinking from a fire hose right now. And so I think just going back through the lectures and things, it'll start to make more sense.

[Jeremiah Lowhorn] 19:42:39

Did it?

[Jeremiah Lowhorn] 19:42:44

It's a lot.

[Phil] 19:42:48

It's starting to make more sense now. Like things are more clear than the first time I went through the lectures.

[Jeremiah Lowhorn] 19:42:54

Good. Yeah, so again, this course is a lot, right? I mean, I preface with that.

[Jeremiah Lowhorn] 19:42:59

I'm giving you an advanced database course with an information retrieval course. And an MQL course.

[Jeremiah Lowhorn] 19:43:05

You're certainly getting your money's worth. There is a lot of material in this course. I'm throwing a lot of theory at you.

[Jeremiah Lowhorn] 19:43:11

I'm throwing programming at you. This class is a lot of work. But you're gonna come out of this with a, really, in my opinion, a wealth of knowledge, right?

[Jeremiah Lowhorn] 19:43:22

We're combining a lot of. Basically, 3 different courses into one here. Don't fill overmed, right?

[Jeremiah Lowhorn] 19:43:29

You know, you already know that I'm pretty flexible with things, I understand. If you have questions, make sure you ask and make sure you come to me.

[Jeremiah Lowhorn] 19:43:35

Look some office time and we'll kind of go over it and make sure that you understand things. It is taking longer than usual.

[Jeremiah Lowhorn] 19:43:43

Thank you for the feedback, PG. Did anybody have issues getting kind of Postgres installed?

[Jeremiah Lowhorn] 19:43:51

I know I had some kind of questions on it.

[Jeremiah Lowhorn] 19:43:55

No.

[Jeremiah Lowhorn] 19:43:59

And it's going on here. I need to kill some threads.

[Jeremiah Lowhorn] 19:44:07

Let's see, what can we kill?

[Jeremiah Lowhorn] 19:44:15

That's part of the problem there. What's using so much of the memory?

[Jeremiah Lowhorn] 19:44:22

Let's nook that.

[Jeremiah Lowhorn] 19:44:29

What else are we got? PowerPoint, we're using that.

[Jeremiah Lowhorn] 19:44:33

2, 2, omen command center. I don't know what that is.

[Jeremiah Lowhorn] 19:44:39

Zoom we need that discord. I don't know why that's open.

[Jeremiah Lowhorn] 19:44:47

Okay.

[Jeremiah Lowhorn] 19:44:51

Oh, there's Keith. That was it. That was. Oh, just out of memory.

[Jeremiah Lowhorn] 19:44:56

Okay, so this is Postgres here. So you can kind of see the user interface for the database.

[Jeremiah Lowhorn] 19:45:05

Right away kind of at the top left we have our object explore you'll have servers here oh goodness, I don't remember my password.

[Jeremiah Lowhorn] 19:45:18

Thank God. So I've got 2 databases here. I've got one called DVD rental, which I believe is one of the homeworks.

[Jeremiah Lowhorn] 19:45:32

I think it's homework for. And then I've got another one called Postgres. Inside these you know we talked about what a schema was So I open this, there's a public schema here, in DVD rental.

[Jeremiah Lowhorn] 19:45:45

And then I'll have tables inside that, all of these table. And this is a bad name for the schema.

[Jeremiah Lowhorn] 19:45:52

It should probably be DVD rental or something like that. Public isn't really.

[Jeremiah Lowhorn] 19:45:57

You know, descriptive of what the data contains. So here you have your tables. So there's an actor table.

[Jeremiah Lowhorn] 19:46:05

You can kind of drill anything further. Here's the columns, actor ID, first name, last name, etc.

[Jeremiah Lowhorn] 19:46:12

So this is the actual data. So kind of the hierarchy is you have a server and inside the server, you can have multiple databases.

[Jeremiah Lowhorn] 19:46:20

Looks like I have 20 yeah, I do have 2. So the DVD rental. Everything in DVD rental really is just one schema.

[Jeremiah Lowhorn] 19:46:28

We created the database for week 4. And then inside the schema, which is improperly named, we have our tables.

[Jeremiah Lowhorn] 19:46:39

And then if we had any views, which I do have some views here, so there's actor info, customer left, staff list, etc.

[Jeremiah Lowhorn] 19:46:47

If you've got any triggers, here's your trigger functions. And we're gonna talk about all this.

[Jeremiah Lowhorn] 19:46:54

Don't be overwhelmed, but kind of everything that you need in your database is kind of right here.

[Jeremiah Lowhorn] 19:47:00

So domains, you know, all of that fun stuff, any kind of user defined functions. These are, you know, functions we may use for week 4 and you guys will learn all this stuff.

[Jeremiah Lowhorn] 19:47:11

But that's what we mean by a schema. That's in the database. There's 2 databases the other one is.

[Jeremiah Lowhorn] 19:47:18

Wonderfully named Postgres. It's the kind of the default database that ships with it. And there I think I've got some more examples.

[Jeremiah Lowhorn] 19:47:25

So I have a hotel schema. Inside the hotel schema there's probably hotel data related to hotels this might be for week 3.

[Jeremiah Lowhorn] 19:47:38

Is there a viewer? Yeah, so let's go view all Rose. So right, click that. I'm looking at booking.

[Jeremiah Lowhorn] 19:47:46

When I did that, it kind of created the SQL statement here and here I can see.

[Jeremiah Lowhorn] 19:47:52

Kind of our, hotel data here. It's just 6 rows.

[Jeremiah Lowhorn] 19:47:59

But that's kind of the gist of it. Now you'll have up here. Different dashboards so probably ignore this dashboard properties you really don't need to be concerned with that You can write SQL here and kind of these things here, but here's the sequel that actually creates the the table.

[Jeremiah Lowhorn] 19:48:19

Right, so. Create table if not exist and we're gonna talk about this.

[Jeremiah Lowhorn] 19:48:25

I believe in week 3 so don't be overwhelmed with this right now. I'm just showing you the user interface here.

[Jeremiah Lowhorn] 19:48:31

Stats on the table, right?

[Jeremiah Lowhorn] 19:48:36

Dependencies it depends on this hotel schema Any dependence it defines your foreign keys and primary keys again we'll talk about that later.

[Jeremiah Lowhorn] 19:48:48

But if you wanted to write, you know, a query, you can do that right here with this query editor.

[Jeremiah Lowhorn] 19:48:53

I believe you can open up a, they have an ERD tool. I've never used that.

[Jeremiah Lowhorn] 19:49:01

Create delete scripts create scripts. Update. So right there you can come here and you know write a select select script right like that. You can come here and, you know, write a select, select script right like that.

[Jeremiah Lowhorn] 19:49:17

It'll create kind of a script for you and then you can execute it kind of with this play button and it's going to execute it kind of with this play button and it's going to go fetch the data for you.

[Jeremiah Lowhorn] 19:49:21

So that's the Postgres user interface. Let's see if I can find a way to turn this black.

[Jeremiah Lowhorn] 19:49:28

I don't like these bright screens. Properties maybe.

[Jeremiah Lowhorn] 19:49:33

I advanced.

[Jeremiah Lowhorn] 19:49:40

Goodness, there's gotta be one. It's gotta be in tools, right?

[Jeremiah Lowhorn] 19:49:49

There we go. Okay, this looks right. Oh

[Jeremiah Lowhorn] 19:49:59

Well, it's not jumping off the page to me. There's gotta be a way to kind of turn this dark.

[Jeremiah Lowhorn] 19:50:08

Property, knows keyboards, yeah, display.

[Jeremiah Lowhorn] 19:50:16

No, I don't see it. It should be right here, right?

[Jeremiah Lowhorn] 19:50:22

That's annoying. So that's kind of PG admin in a nutshell.

[Jeremiah Lowhorn] 19:50:28

Now, when we actually get in here and start using things, I think it'll start to make a little bit more sense if you want to go in and play with it now.

[Jeremiah Lowhorn] 19:50:36

You can start to, you know, run queries if you know SQL. I think I'm asking you to.

[Jeremiah Lowhorn] 19:50:43

Actually create a database in week one, create some tables. Let's look at that.

[Jeremiah Lowhorn] 19:50:51

So there are textbook exercises that again, these are gonna kind of cover the theory here.

[Jeremiah Lowhorn] 19:50:58

I'm describing the role of concurrency control, specify relationships, think of different users. What types of applications with the users need.

[Jeremiah Lowhorn] 19:51:09

And this should say Postgres sequel. Right.

[Jeremiah Lowhorn] 19:51:16

So there is some instructions on how to, you know, install the database. You built the database.

[Jeremiah Lowhorn] 19:51:23

You've logged in, you're going to need to run and execute the SQL query.

[Jeremiah Lowhorn] 19:51:27

Lab Exercise Sequel. And then kind of submit. Those results. So let's.

[Jeremiah Lowhorn] 19:51:35

Find that. Where's that at?

[Jeremiah Lowhorn] 19:51:39

Lab Exercise Sequel. Open With, can I open up with TG admin? Let's just open it here.

[Jeremiah Lowhorn] 19:51:46

Right here, there's a open file. Discard, yeah. Glad exercises. So you're gonna need.

[Jeremiah Lowhorn] 19:51:56

Execute this query here.

[Jeremiah Lowhorn] 19:52:00

Oh, what did I do? Oh, yeah. So, and I don't think I have this table defined.

[Jeremiah Lowhorn] 19:52:07

Let me go define that table. Notes. Indexing close grass.

[Jeremiah Lowhorn] 19:52:25

So you're gonna need to change the schema name. Do I not have that defined?

[Jeremiah Lowhorn] 19:52:35

Hey, hotels and I put it in public.

[Jeremiah Lowhorn] 19:52:40

I did not. So I'm gonna need a load. Do, did you guys see the DDLs for the week one Postgres install in this example.

[Jeremiah Lowhorn] 19:52:51

Are they not in the notes?

[Udumaga Onyeukwu] 19:52:53

They are not.

[Jeremiah Lowhorn] 19:52:55

They're not. Okay.

[Jeremiah Lowhorn] 19:53:00

Goodness gracious, they're gonna be on my other computer. I'm gonna need to go dig for those.

[Jeremiah Lowhorn] 19:53:06

My sincere apologies. So for those my sincere apologies. So for, now what I'd like you to do since this query is not going to work.

[Jeremiah Lowhorn] 19:53:14

I'm gonna just ask that you get Postgres installed and then just include a screenshot.

[Jeremiah Lowhorn] 19:53:20

With a

[Jeremiah Lowhorn] 19:53:24

Your homework. And then I'm gonna try to locate those DDLs because originally I had a set of DDLs.

[Jeremiah Lowhorn] 19:53:32

And I did transfer computers, so that might be part of the problem, where you were actually creating a schema, creating a set of tables and then you would execute this query on those.

[Jeremiah Lowhorn] 19:53:44

So I need to find where those DDLs are and then, I'll send those out.

[Jeremiah Lowhorn] 19:53:49

So if you want to do it kind of is Extra just to kind of understand things you can, but right now just get Postgres installed.

[Jeremiah Lowhorn] 19:53:56

So that's, my apologies. I, I don't know why. Or where they went because they're not in my materials here.

[Jeremiah Lowhorn] 19:54:02

So. I'll get that taken care of. Yes. Just that you've got PG admin, just kinda go to the snipping tool here.

[Sue Susman (she | her)] 19:54:06

There, am I, you said a sweetheart. What does you want?

[Jeremiah Lowhorn] 19:54:18

Just show me PG. You're not gonna have any data in there and that's my fault.

[Jeremiah Lowhorn] 19:54:24

I'll send in an announcement when I get it. So just as long as I can see you've got it installed and everything's working that'll suffice for now.

[Jeremiah Lowhorn] 19:54:33

Okay, so it's not gonna look like this because there's no data, right? I didn't get the DDLs for whatever reason in Canvas.

[Jeremiah Lowhorn] 19:54:42

I really drop the ball there, so my apologies. So just give me a screenshot that PG admin, fors installed and that'll suffice for now.

[Terry Melim] 19:54:51

And that's for lab one.

[Jeremiah Lowhorn] 19:54:54

That's for lab one. So where it says.

[Jeremiah Lowhorn] 19:55:00

Right here, once you built your database, execute the lab exercise SQL. Really all you need to do is just take a picture of Postgres for me and I'll add that as an announcement.

[Jeremiah Lowhorn] 19:55:14

And then once I find the DDL, I'll send them to you and if you want to do it just to do it.

[Jeremiah Lowhorn] 19:55:19

Fantastic.

[Jeremiah Lowhorn] 19:55:23

So that is week one. We've got 5 min. Do you guys have any questions, any concepts?

[Jeremiah Lowhorn] 19:55:32

You want me to dive in further?

[Steven Uzupis] 19:55:42

I have a question on the homework. Do you want to submit it as a PDF?

[Jeremiah Lowhorn] 19:55:46

Yep. Yeah, so in word. 2. That's a good question.

[Steven Uzupis] 19:55:49

Okay.

[Jeremiah Lowhorn] 19:55:54

I think you can print to a PDF. Since it in my office shed, I'm gonna do a Microsoft print PDF.

[Jeremiah Lowhorn] 19:56:04

It's just formatted much cleaner and canvas. I prefer just to.

[Jeremiah Lowhorn] 19:56:13

Use a PDF. So you can print the PDF. I think I did that right in documents, which is not a good practice.

[Jeremiah Lowhorn] 19:56:22

There you can see kind of, test here.

[Steven Uzupis] 19:56:28

Yeah.

[Jeremiah Lowhorn] 19:56:31

And then.

[Jeremiah Lowhorn] 19:56:34

It's so you can do that right with Word. Right, just print to PDF.

[Jeremiah Lowhorn] 19:56:46

Okay. Let me find those. DDLs, I gave my old laptop to my son.

[Jeremiah Lowhorn] 19:56:54

Hopefully they're not white. If not, I'll write them tomorrow and then I'll send them back out.

[Jeremiah Lowhorn] 19:56:59

So that's, that's my fault. I know I wrote them because they were in the database on the old computer.

[Jeremiah Lowhorn] 19:57:05

But I think I just messed up and maybe deleted and removed them or. Have them in the wrong place.

[Jeremiah Lowhorn] 19:57:14

Let me double check something.

[Jeremiah Lowhorn] 19:57:19

Hmm Sometimes I put them in notes.

[Jeremiah Lowhorn] 19:57:24

We one partitioning indexing and no I didn't do it. That's I dropped the ball.

[Jeremiah Lowhorn] 19:57:29

Okay, I'll get the DDOs to. You'll have them. Friday afternoon, the latest.

[Jeremiah Lowhorn] 19:57:36

So. But good news is you don't have to do the database execution.

[Jeremiah Lowhorn] 19:57:44

Okay, Terry, thank you. So let's do that real quick. So preferences, miscellaneous.

[Jeremiah Lowhorn] 19:57:53

Where is Miscellaneous?

[Terry Melim] 19:57:57

Scroll down on in the left menu. Hmm, right there.

[Jeremiah Lowhorn] 19:58:06

Yes.

[Jeremiah Lowhorn] 19:58:12

Beautiful, thank you so much. So that's how you do it. If you're a dark theme person like me.

[Jeremiah Lowhorn] 19:58:19

This is much easier on my eyes. That's how you do it. So thank you, Terry, for that.

[Terry Melim] 19:58:24

You're welcome.

[Jeremiah Lowhorn] 19:58:25

Anything. Any does anybody have any other questions, comments, concerns?

[Udumaga Onyeukwu] 19:58:31

Yes, the, the homework, they figure 2.1, the schema, it's not on canvas.

[Jeremiah Lowhorn] 19:58:42

This one?

[Udumaga Onyeukwu] 19:58:42

Please still on 1 point. No, no, on the left. 1.9.

[Udumaga Onyeukwu] 19:58:49

Yes, that.

[Jeremiah Lowhorn] 19:58:49

This is not in Canvas. Okay. So I posted the GitHub link, right?

[Jeremiah Lowhorn] 19:58:58

So if you do a get pull on the GitHub link kinda like you did for 5 0 0 2, you'll have the Word document.

[Jeremiah Lowhorn] 19:59:04

And you'll be able to see kind of How I originally wrote it? When things go to canvas for whatever reason, they're not.

[Jeremiah Lowhorn] 19:59:14

I don't know what she does, honestly. So. Sorry about that. But do a get pull, bring it down locally.

[Jeremiah Lowhorn] 19:59:22

You've, you'll have all the materials and you'll be able to see the schema here.

[Jeremiah Lowhorn] 19:59:25

It's also in your book, so if you've got the book or you look at the PDF, you can just look at the PDF and see figure 2.1 as well.

[Jeremiah Lowhorn] 19:59:32

So.

[Jeremiah Lowhorn] 19:59:37

Okay, guys. Again, office hours are at the same time 2 to 5 Friday if you need something outside off hours, please get ahead it.

[Jeremiah Lowhorn] 19:59:49

Please get ahead of it. Get with me. I think we're I'm doing something.

[Jeremiah Lowhorn] 19:59:52

Saturday evening so there's no that's just not going to happen. Maybe Sunday if you need anything.

[Jeremiah Lowhorn] 19:59:59

Let me know and we'll get it work through. Thanks guys. I hope you enjoyed the first lecture.

[Jeremiah Lowhorn] 20:00:05

I'm really excited about the course. Really excited about the content. I'm gonna go back through after missing those DDLs and make sure I'm not missing anything else this weekend.

[Jeremiah Lowhorn] 20:00:14

So. Thanks guys and we'll we'll see you next week.

[Terry Melim] 20:00:16

Yeah. Thank you.

[Thomas Dinh] 20:00:19

Thank you.

[Sue Susman (she | her)] 20:00:19

Thanks, Chairman.

[Rebecca Hawthorne] 20:00:21

Thank you.

[Isaac Hodgkins] 20:00:21

Thanks, Jeremiah.

[Udumaga Onyeukwu] 20:00:22

Thank you.

[Sue Susman (she | her)] 20:00:23

Can you consider doing the Hadoop in the summer too instead of summer one?

[Jeremiah Lowhorn] 20:00:30

No, I think it's set in stone. I don't define that. I think it's summer.

[Sue Susman (she | her)] 20:00:36

It's like I have everything, everything I need or want is all in the first, in the first term, and then I'm gonna end up having second terms off.

[Jeremiah Lowhorn] 20:00:48

Yeah. No, that's not something I decide. That's Something the director would decide.

[Sue Susman (she | her)] 20:00:48

It's like, I don't wanna do that.

[Sue Susman (she | her)] 20:00:54

Okay.

[Jeremiah Lowhorn] 20:00:57

So. I just teach what they tell me to teach.

[Sue Susman (she | her)] 20:01:01

I would love to sit through your 50010 my god, I'm so glad that you're teaching it.

[Sue Susman (she | her)] 20:01:07

I was

[Jeremiah Lowhorn] 20:01:07

Yeah, it was, so I mean, I just figured out I figured I found out I was teaching it like 2 weeks ago, so I haven't even gone through the whole book.

[Jeremiah Lowhorn] 20:01:15

I mean, it's nothing I don't know. It's just Got it kind of getting it. It's not my material, right?

[Sue Susman (she | her)] 20:01:17

I was just so much busy.

[Jeremiah Lowhorn] 20:01:23

I don't I didn't create the material so when I get asked questions is like well Let me double check on that one.

[Sue Susman (she | her)] 20:01:26

There's so much busy work and, you know, and he would always tell us if you need help with our go to the tutors if you need help with statistical analysis come see me.

[Sue Susman (she | her)] 20:01:37

Well, the tutoring program is gone. They're not doing it anymore. And I'm kind of bummed about that.

[Jeremiah Lowhorn] 20:01:41

Hello, they just, posted that job today.

[Sue Susman (she | her)] 20:01:45

What?

[Jeremiah Lowhorn] 20:01:48

The tutor for the program.

[Sue Susman (she | her)] 20:01:50

James told me that they weren't going to continue it.

[Jeremiah Lowhorn] 20:01:55

I think they posted one for 5 0 0 one and 5 0 0 2. I don't think it's for the rest of the courses.

[Jeremiah Lowhorn] 20:02:02

It's just specifically for those 2 courses.

[Sue Susman (she | her)] 20:02:03

Oh, I'll ask him because I'm happy to tutor. That's what I've been doing.

[Jeremiah Lowhorn] 20:02:07

In Jobsite is. I open. I forget what he called it.

[Sue Susman (she | her)] 20:02:10

Okay.

[Sue Susman (she | her)] 20:02:14

I'm shake, right?

[Jeremiah Lowhorn] 20:02:22

But yeah, feel free to apply to it.

[Sue Susman (she | her)] 20:02:24

Yeah.

[Sue Susman (she | her)] 20:02:28

Hello.

[Jeremiah Lowhorn] 20:02:30

All these questions I've got. Yeah, Jeff, Jeff, Jeff, Tutor.

[Jeremiah Lowhorn] 20:02:40

Handshake. I don't know what that is. It's in handshake.

[Sue Susman (she | her)] 20:02:41

And the answer.

[Sue Susman (she | her)] 20:02:45

Alright, I'll go in there and I'll apply for it because actually I'm gonna reach out to James first and find out what's going on.

[Sue Susman (she | her)] 20:02:51

So tutoring was helpful to me.

[Jeremiah Lowhorn] 20:02:53

Okay.

[Sue Susman (she | her)] 20:02:59

Cool. Alright, go take care of your kids.

[Jeremiah Lowhorn] 20:03:03

Yeah, they were banging at the door so I gotta go wrangle them. We'll see you next week

[Sue Susman (she | her)] 20:03:07

Definitely