

DATA 133 - Introduction to Data Science I

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Pacific Lutheran University



Announcements

Extra credit for course evaluation!

- >60 % - 10 bonus homework points
- >70 % - 15 bonus homework points
- >80 % - 20 bonus homework points
- >90 % - 5 bonus points on final exam
- >95 % - 7 bonus points on final exam
- 100 % - 10 bonus points on final exam!!!

Video links

- Part 1 discord bot setting: <https://youtu.be/8CQcn0docaE>
- Part 2 discord bot implementation: <https://youtu.be/hF8iovr95po>
- Part 3 discord bot on Google Cloud: <https://youtu.be/remzWgFsHI4>

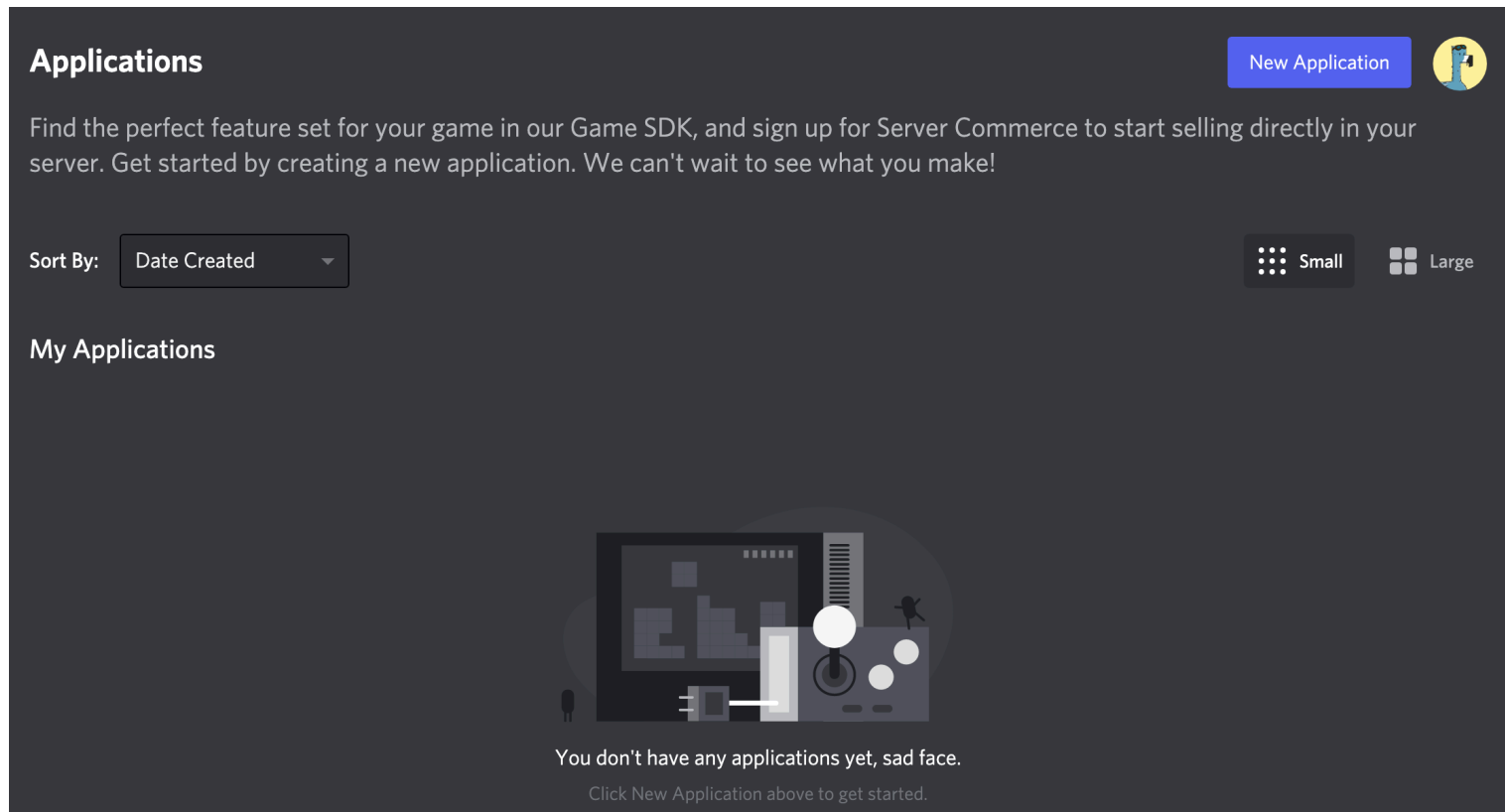
Announcements

- Let's explore the discord bot together. We need the following:
 1. An discord account
 2. An application
 3. A bot
 4. A guild


Creating an application

An **application** allows you to interact with Discord's APIs by providing authentication tokens

<https://discord.com/developers/applications>



The screenshot shows the 'Applications' section of the Discord Developer Portal. At the top, there's a header with the title 'Applications' and a 'New Application' button. Below the header, a paragraph explains that users can find feature sets for their games in the Game SDK and sign up for Server Commerce. A 'Sort By: Date Created' dropdown menu is visible. To the right, there are 'Small' and 'Large' view toggle buttons. The main content area is titled 'My Applications' and currently displays a message: 'You don't have any applications yet, sad face.' Below this message is an illustration of a computer monitor and keyboard. At the bottom, a link says 'Click New Application above to get started.'

Applications [New Application](#) 

Find the perfect feature set for your game in our Game SDK, and sign up for Server Commerce to start selling directly in your server. Get started by creating a new application. We can't wait to see what you make!

Sort By: Date Created

Small Large

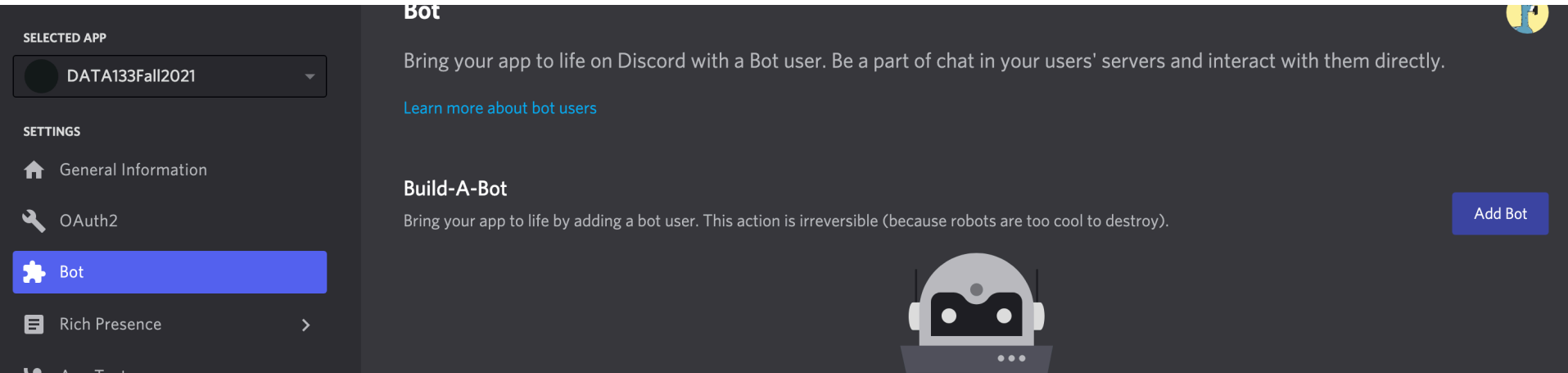
My Applications

You don't have any applications yet, sad face.

[Click New Application above to get started.](#)

Creating a bot

Now we can create a bot by clicking the “Add Bot” button



You can rename your bot to any name, like data133bot?
Make sure you save the changes!

Creating a bot

You can change the bot name to something like: data133Bot?

You should also set up the permission for this bot. From OAuth2.

← Back to Applications

SELECTED APP

DATA133Fall2021

SETTINGS

General Information

OAuth2

Bot

Rich Presence >

App Testers

DEVELOPER LICENSE

- Create store pages in your server
- Run Alpha and Beta tests for your game

SCOPES

☐ identify

☐ email

☐ connections

☐ guilds

☐ guilds.join

☐ guilds.members.read

☐ gdm.join

☐ rpc

☐ rpc.notifications.read

☐ rpc.voice.read

☐ rpc.voice.write

☐ rpc.activities.write

☒ bot

☐ webhook.incoming

☐ messages.read

☐ applications.builds.upload

☐ applications.builds.read

☐ applications.commands

☐ applications.commands.permissions.update

☐ applications.store.update

☐ applications.entitlements

☐ activities.read

☐ activities.write

☐ relationships.read

https://discord.com/api/oauth2/authorize?client_id=910252262134259763&permissions=534723950656&scope=bot

Copy

BOT PERMISSIONS

GENERAL PERMISSIONS

☐ Administrator

☐ View Audit Log

☐ View Server Insights

☐ Manage Server

TEXT PERMISSIONS

☒ Send Messages

☒ Public Threads

☒ Private Threads

☒ Send Messages in Threads

VOICE PERMISSIONS

☐ Connect

☐ Speak

☐ Video

☐ Mute Members

Creating a bot

Now you should Copy the link generated, and we will need it later on

[← Back to Applications](#)

SELECTED APP
DATA133Fall2021

SETTINGS
[General Information](#)
[OAuth2](#)
[Bot](#)
[Rich Presence](#)
[App Testers](#)

DEVELOPER LICENSE

- Create store pages in your server
- Run Alpha and Beta tests for your game

SCOPES

<input type="checkbox"/> identify	<input type="checkbox"/> rpc.notifications.read	<input type="checkbox"/> applications.builds.read
<input type="checkbox"/> email	<input type="checkbox"/> rpc.voice.read	<input type="checkbox"/> applications.commands
<input type="checkbox"/> connections	<input type="checkbox"/> rpc.voice.write	<input type="checkbox"/> applications.commands.permissions.update
<input type="checkbox"/> guilds	<input type="checkbox"/> rpc.activities.write	<input type="checkbox"/> applications.store.update
<input type="checkbox"/> guilds.join	<input checked="" type="checkbox"/> bot	<input type="checkbox"/> applications.entitlements
<input type="checkbox"/> guilds.members.read	<input type="checkbox"/> webhook.incoming	<input type="checkbox"/> activities.read
<input type="checkbox"/> gdm.join	<input type="checkbox"/> messages.read	<input type="checkbox"/> activities.write
<input type="checkbox"/> rpc	<input type="checkbox"/> applications.builds.upload	<input type="checkbox"/> relationships.read

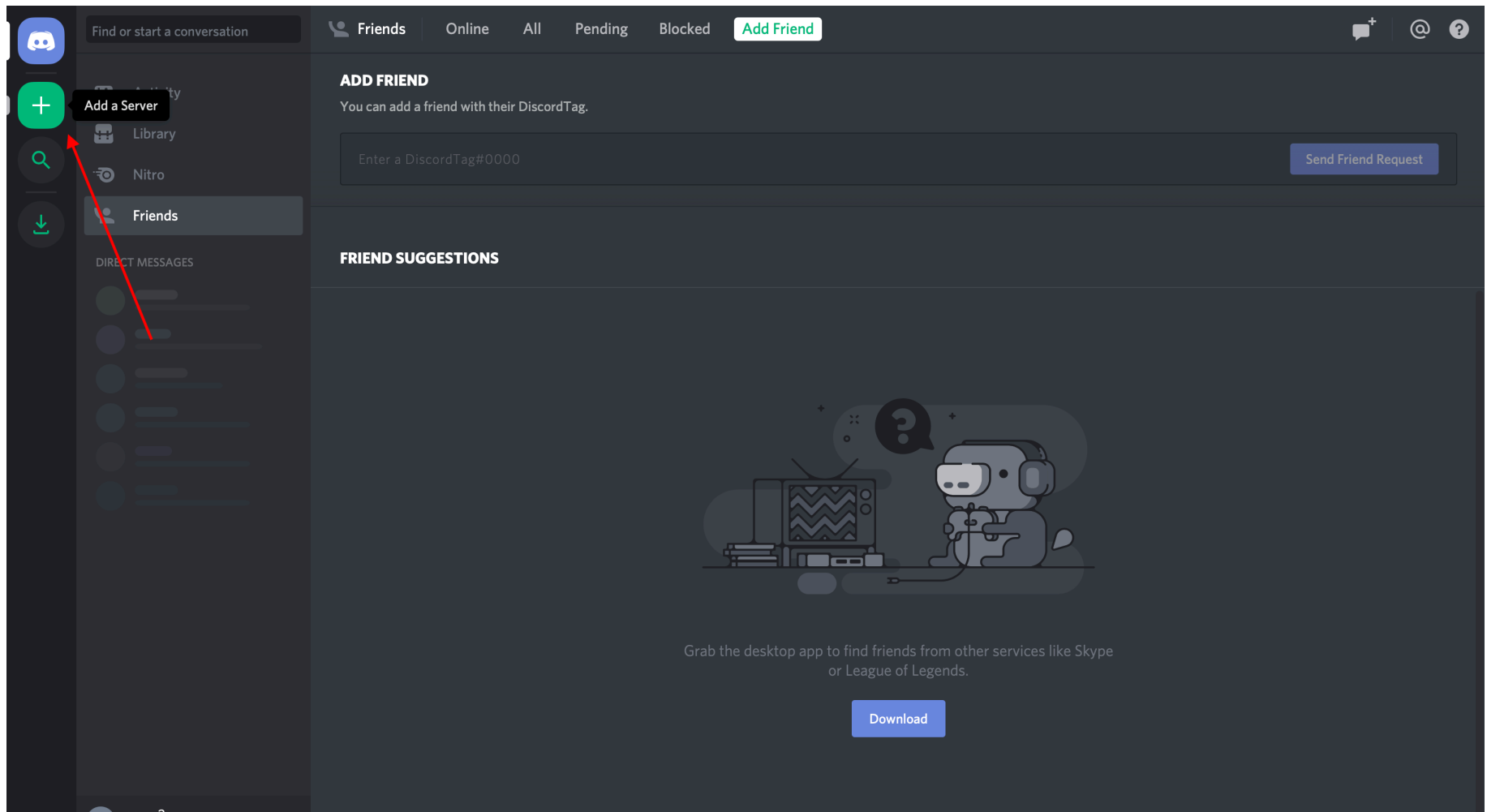
https://discord.com/api/oauth2/authorize?client_id=910252262134259763&permissions=534723950656&scope=bot[Copy](#)

BOT PERMISSIONS

GENERAL PERMISSIONS <ul style="list-style-type: none"><input type="checkbox"/> Administrator<input type="checkbox"/> View Audit Log<input type="checkbox"/> View Server Insights<input type="checkbox"/> Manage Server	TEXT PERMISSIONS <ul style="list-style-type: none"><input checked="" type="checkbox"/> Send Messages<input checked="" type="checkbox"/> Public Threads<input checked="" type="checkbox"/> Private Threads<input checked="" type="checkbox"/> Send Messages in Threads	VOICE PERMISSIONS <ul style="list-style-type: none"><input type="checkbox"/> Connect<input type="checkbox"/> Speak<input type="checkbox"/> Video<input type="checkbox"/> Mute Members
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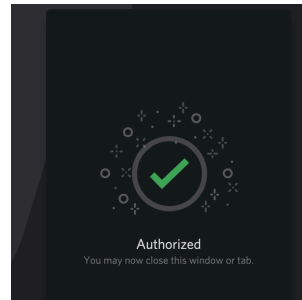
Creating a server

Now you need to create guild / server so that your bot can interact with.



Adding bot to a server

Paste the URL you have copied to the browser. Make sure you have permission to add bot to the channel.



[← Back to Applications](#)

SELECTED APP
DATA133Fall2021

SETTINGS
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[Bot](#)
[Rich Presence](#)
[App Testers](#)

SCOPES

<input type="checkbox"/> identify	<input type="checkbox"/> rpc.notifications.read	<input type="checkbox"/> applications.builds.read
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<input type="checkbox"/> guilds	<input type="checkbox"/> rpc.activities.write	<input type="checkbox"/> applications.store.update
<input type="checkbox"/> guilds.join	<input checked="" type="checkbox"/> bot	<input type="checkbox"/> applications.entitlements
<input type="checkbox"/> guilds.members.read	<input type="checkbox"/> webhook.incoming	<input type="checkbox"/> activities.read
<input type="checkbox"/> gdm.join	<input type="checkbox"/> messages.read	<input type="checkbox"/> activities.write
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https://discord.com/api/oauth2/authorize?client_id=910252262134259763&permissions=534723950656&scope=bot [Copy](#)

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DEVELOPER LICENSE

- Create store pages in your server
- Run Alpha and Beta tests for your game

→ Everyone welcome DATA133Bot! Today at 11:29 AM

You are done!

Now you have created and added a bot to your server!!! Congratulations!

Let's implement the bot

Install the discord:

```
pip install -U discord.py
```

Let's implement the bot

Now, let's have a try, connect to discord!

Open jupyter-notebook and try:

First, install nest-asyncio, you can do that in the jupyter-notebook:

```
!pip install nest-asyncio
```

Second, let's connect to the discord:

```
import nest_asyncio  
nest_asyncio.apply()
```

```
import discord  
TOKEN = "OTExMzI0NTU5MTk2Njg4NDM0.YZfvlg.mdU8xUKGBS6mDVXQVkJTErpxsoQk" # you  
should copy your token for your bot  
client = discord.Client()
```

```
@client.event  
async def on_ready():  
    print(f'{client.user} has connected to Discord!')
```

```
client.run(TOKEN)
```

Let's check the guild

```
DISCORD_GUILD= "DATA 133"      #{your-guild-name}  
TOKEN = "OTExMzI0NTU5MTk2Njg4NDM0.YZfvlg.mdU8xUKGBS6mDVXQVkJTErpxsoQk"  
# you should copy your token for your bot
```

```
@client.event  
async def on_ready():  
    for guild in client.guilds:  
        if guild.name == GUILD:  
            break  
  
    print(  
        f'{client.user} is connected to the following guild:\n'  
        f'{guild.name}(id: {guild.id})'  
    )  
  
client.run(TOKEN)
```

Let's check the guild

Warning: you may need to restart the jupyter-notebook, since the event is infinite loop to keep the connection....

Let's check the guild

```
import nest_asyncio
nest_asyncio.apply()
#__import__('IPython').embed()

import discord
DISCORD_GUILD= "DATA 133"      #{your-guild-name}
TOKEN = "OTExMzI0NTU5MTk2Njg4NDM0.YZfvlg.mdU8xUKGBS6mDVXQVktErpxsoQk"
# you should copy your token for your bot
client = discord.Client()

@client.event
async def on_ready():
    for guild in client.guilds:
        if guild.name == DISCORD_GUILD:
            break

    print(
        f'{client.user} is connected to the following guild:\n'
        f'{guild.name}(id: {guild.id})'
    )

client.run(TOKEN)
```

DATA133Bot#0201 is connected to the following guild:
DATA 133(id: 881245919113277521)

Let's send message

```
@client.event
async def on_member_join(member):
    await member.create_dm()
    await member.dm_channel.send(
        f'Hi {member.name}, welcome to my Discord server!'
    )
```

Let's send message

```
@client.event
async def on_message(message):
    if message.author == client.user:
        return
```

```
bot_quotes = [
    'Hello, I am a bot, 100 emoji.',
    'Bingo!',
    (
        'happy, cool, happy, cool, happy, cool '
        'no doubt no doubt no doubt no doubt.'
    ),
]
```

```
if message.content == 'wow!':
    response = random.choice(bot_quotes)
    await message.channel.send(response)
```



DrCAO Today at 3:16 PM

you are? wow



DATA133Bot BOT Today at 3:16 PM

happy, cool, happy, cool, happy, cool no doubt no doubt no doubt no doubt.



DrCAO Today at 3:16 PM

interesting, hi my dear bot, wow that is cool



DATA133Bot BOT Today at 3:16 PM

Hello, I am a bot, 100 emoji.



DrCAO Today at 3:17 PM

interesting, hi my dear bot, wow that is cool, can you talk to me?



DATA133Bot BOT Today at 3:17 PM

Bingo!

Google Cloud

All of you should already have the Google Cloud