Welcome To

Creating

a

Level & Rep Bot

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www.Cattail.Nu

Discord JS   SQLite3

Workshop Topics

- **JavaScript**
  - Packages
  - Basic Execution
  - Functions
  - Async Database Calls

- **SQLite3 / SQL**

- **Bot Code Assembly**

- **Terminal / Command Prompt / BASH**

- **Discord JS**

- **WITH**
  - **Efficiency**
  - **Security**
  - **Functionality**

http://cattail.nu/bots/pastebin.html

Prerequisites

- Knowledge of at least 1 programming language

- Development environment if you are going to follow along:

  - Node JS

  - Discord JS

  - Sqlite3

  - SprintF-JS

- Discord server to test on

- http://cattail.nu/bots/botRepLevel.pdf

- Working bot template as set up by the above PDF

Basic JavaScript Syntax

```JavaScript
1  function myFunction() {
2
3      return;
4  }
5
6  myFunction();
```

```JavaScript
1  if (condition) {
2      // true condition;
3  } else {
4      // false condition;
5  }
```

```JavaScript
1  /*
2      multiline
3      comment
4  */
```

```JavaScript
1  function Script(someText) {
2
3      console.log("inside Script function");
4      console.log(someText);
5
6      var hello = "Hello, " + someText;
7      return hello;
8
9  }
10
11 console.log("outside Script function");
12 var result = Script("Brendan");
13 console.log(result);
14 console.log("end of the script");
```

array.length == 3
array[0] == "a"
array[1] == "b"
array[2] == "c"

```JavaScript
1  var array = [ "a", "b", "c" ];
2
3  for (var index = 0, count = array.length; index < count; index++){
4
5      console.log(array[index]);
6
7  }
```

Workshop Overview

1. How Discord bots work

2. How this bot will work

3. How the baseline template code works

4. Adding the command / event skeleton
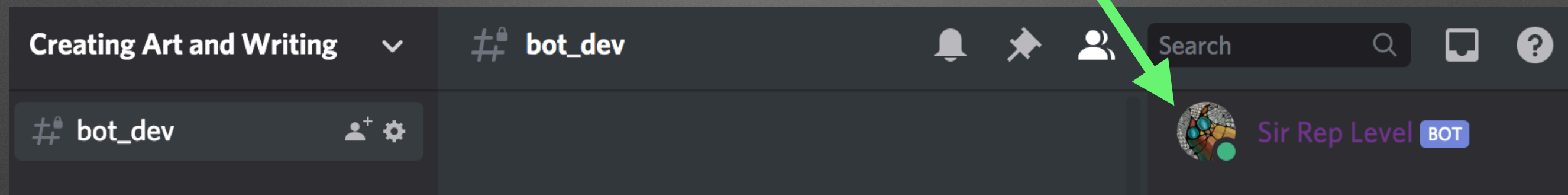
5. Adding the database
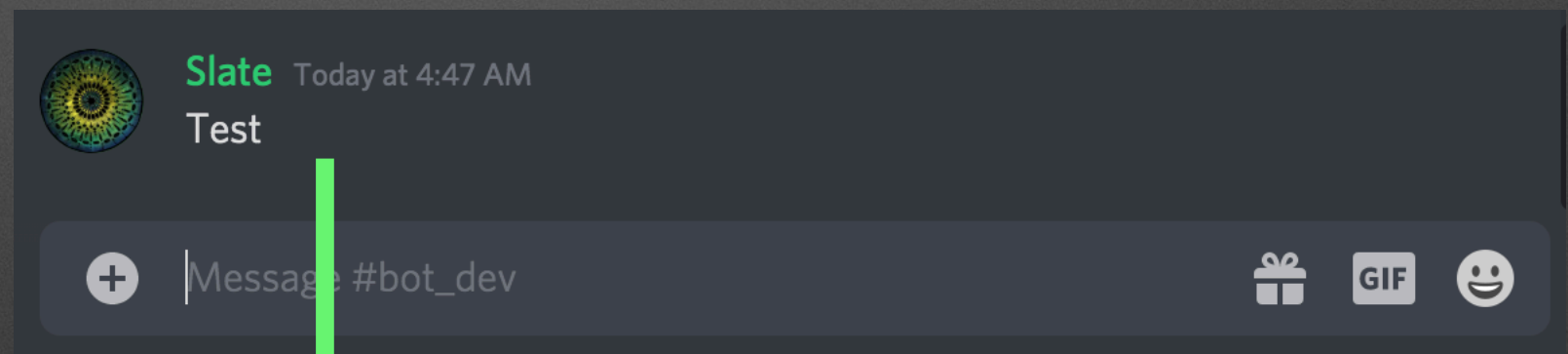
How Discord Bots Work

Bot Running

```
botRepLevel — node indexRepLevel.js — 65×16
tford@~: cd bot
tford@~/bot: cd botRepLevel
tford@~/bot/botRepLevel: node indexRepLevel.js
online
```

Bot Comes Online

Creating Art and Writing ∨   #🔒 **bot_dev**   🔔 📌 👥   Search 🔍 💬 ❓

#🔒 **bot_dev**   👤⁺ ⚙   🖼 Sir Rep Level **BOT**

🖼 **Slate** Today at 4:47 AM
Test

An Event Happens

➕ Message #bot_dev   🎁 **GIF** 😃

Bot Responds to Event

```
botRepLevel — node indexRepLevel.js — 65×16
tford@~: cd bot
tford@~/bot: cd botRepLevel
tford@~/bot/botRepLevel: node indexRepLevel.js
online
206757095280869377:Slate
Test
```

How Our Rep Level Bot Will Work

Person types message.

If long enough time has passed, person gets a score point.

If person has high enough score, person gains a level.

Person types .rep @name.

If long enough time has passed, AND
if it is not themselves,
@name gains a reputation point.

Report of top people
by Activity and Reputation

Events in Code

Bot is ready and listening to events

A message arrived on a channel the bot has permission to hear

Something unexpected happened

```javascript
1   const Discord = require('discord.js');
2   const client = new Discord.Client();
3   const settings = require('./settings.json');
4
5   client.on('ready',() => {
6       console.log("online");
7   });
8
9
10  client.on('message', message => {
11      if (message.author === client.user) return;
12      if (message.author.bot) return;
13
14      console.log(message.author.id + ":" + message.author.username);
15      console.log(message.content);
16
17
18  });
19
20  client.on('error', function (err) {
21      console.log('Global error handler called:\n');
22      if(err) {console.log(err);}
23  });
24
25  client.login(settings.token);
```

discordjs-cheatsheet.js.txt

Events in Code { code block }

Begin

End

```
));
client.on('message', message => {
  if (message.author === client.user) return;
  if (message.author.bot) return;

  console.log(message.author.id + ":" + message.author.username);
  console.log(message.content);

});
```

SQL

CREATE TABLE Syntax

SQL

```
CREATE TABLE tblUsers (
    txtID CHAR(25) PRIMARY KEY NOT NULL,
    intLastGaveRepOn INTEGER DEFAULT 0,
    intScore INTEGER DEFAULT 0,
    intLevel INTEGER DEFAULT 0,
    intReputation INTEGER DEFAULT 0,
    txtNickname VARCHAR DEFAULT ''
);
```

```
1  CREATE TABLE tblUsers (
2      txtID CHAR(25) PRIMARY KEY NOT NULL,
3      intLastGaveRepOn INTEGER DEFAULT 0,
4      intScore INTEGER DEFAULT 0,
5      intLevel INTEGER DEFAULT 0,
6      intReputation INTEGER DEFAULT 0,
7      txtNickname VARCHAR DEFAULT ''
8  );
```

JavaScript

```
var sql = "CREATE TABLE IF NOT EXISTS tblUsers( ";
    sql += "txtID CHAR(25) PRIMARY KEY NOT NULL, ";
    sql += "intLastGaveRepOn INTEGER DEFAULT 0, ";
    sql += "intScore INTEGER DEFAULT 0, ";
    sql += "intLevel INTEGER DEFAULT 0, ";
    sql += "intReputation INTEGER DEFAULT 0, ";
    sql += "txtNickname VARCHAR DEFAULT '' ";
    sql += ");";
```

INSERT Syntax

SQL

```sql
INSERT INTO tblUsers(
    txtID,
    txtNickname
) VALUES (
    '206757095280869377',
    'T. L. Ford'
);
```

```sql
1  INSERT INTO tblUsers(
2      txtID,
3      txtNickname
4  ) VALUES (
5      '206757095280869377',
6      'T. L. Ford'
7  );
8
```

JavaScript

```javascript
var sql = "";
sql += "INSERT INTO tblUsers( ";
    sql += "txtID, ";
    sql += "txtNickname ";
sql += ") VALUES ( ";
    sql += "'" + insertScrub(user_id,25) + "', ";
    sql += "'" + insertScrub(getNickname(message, user_id)) + "' ";
sql += ");"
```

SELECT Syntax

SQL

```
--------------------------------
SELECT
    *
FROM
    tblUsers
--------------------------------
SELECT
    *
FROM
    tblUsers
ORDER BY
    intLevel DESC,
    intReputation DESC
--------------------------------
SELECT
    txtID,
    txtNickname,
    intLevel,
    intReputation
FROM
    tblUsers
ORDER BY
    intLevel DESC,
    intReputation DESC
--------------------------------
```

```
1    --------------------------------
2    SELECT
3      *
4    FROM
5      tblUsers
6    --------------------------------
7    SELECT
8      *
9    FROM
10     tblUsers
11   ORDER BY
12     intLevel DESC,
13     intReputation DESC
14   --------------------------------
15   SELECT
16     txtID,
17     txtNickname,
18     intLevel,
19     intReputation
20   FROM
21     tblUsers
22   ORDER BY
23     intLevel DESC,
24     intReputation DESC
25   --------------------------------|
```

JavaScript

```javascript
var sql = "SELECT * ";
    sql += "FROM tblUSERS ";
    sql += "WHERE ";
    sql += "txtID = '" + insertScrub(message.author.id,25) + "' ";
    sql += ";";
```

UPDATE Syntax

SQL

```
UPDATE tblUsers SET
    txtNickname = 'T. L. Ford',
    intScore = (intScore + 1)
WHERE
    txtID = '206757095280869377';
```

```
1   UPDATE tblUsers SET
2     txtNickname = 'T. L. Ford',
3     intScore = (intScore + 1)
4   WHERE
5     txtID = '206757095280869377';
6
```

JavaScript

```
var sql = "";
sql = "UPDATE tblUsers ";
sql += "SET "
    sql += "txtNickname = '" + userNickname + "', ";
    sql += "intReputation = (intReputation + 1) ";
sql += "WHERE ";
    sql += "txtID = '" + insertScrub(user.id,25) + "' ";
sql += ";";
```

JavaScript SQLite3 Syntax (async request)

```javascript
const sqlite3 = require('sqlite3').verbose();

const file = "/Users/tford/bot/botRepLevel/data.db";
const dbData = new sqlite3.Database(file);

...

var sql = "SELECT * ";
    sql += "FROM tblUSERS ";
    sql += "ORDER BY intLevel DESC ";
    sql += "LIMIT 10 ";
    sql += ";";

dbData.all(sql, function(err, rows) {

    if (err) {
        console.log(sql);
        console.log(err.message);
    }

    var str = "";
    str += "Top Levels:\n";


    for (i=0; i < rows.length; i++) {
        str += "Level " + rows[i].intLevel + ": " + rows[i].txtNickname + "\n";
    }

    message.channel.send(str);
});
```

LINKS

- SQL Reference:

  - https://www.w3schools.com/sql/sql_quickref.asp

About Me

After a few wonderful decades programming databases, computer security, and doing general IT support, I left the windowless office to write, make art, and enjoy the magnificence of the outdoors. I program things for amusement now, including bots.

See my website: http://www.Cattail.Nu

Please consider reading or sharing one of my books: