Topalian JavaScript True AI 16 Gates

by
Christopher Andrew Topalian
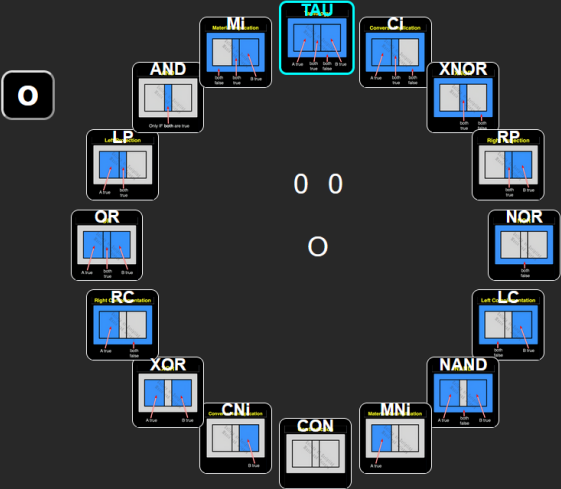
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to
God the Father

Topalian JavaScript True AI 16 Gates
PLAYING

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

100%

TAU
Tautology
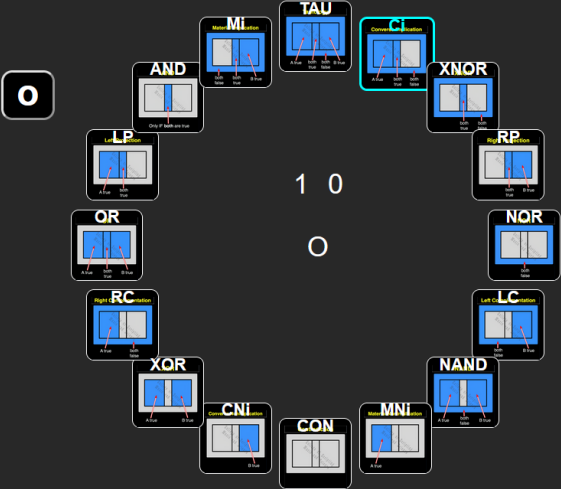**if ((a == 0 && b == 0) || (a == 0 && b == 1) || (a == 1 && b == 0) || (a == 1 && b == 1))**
1111

A	B		
0	0	=	1
0	1	=	1
1	0	=	1
1	1	=	1

Opposite is: Contradiction

Topalian JavaScript True AI 16 Ga...
PLAYING

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100%

1   0

O

Ci
Converse Implication
if (a == 1 || b == 0)
1011

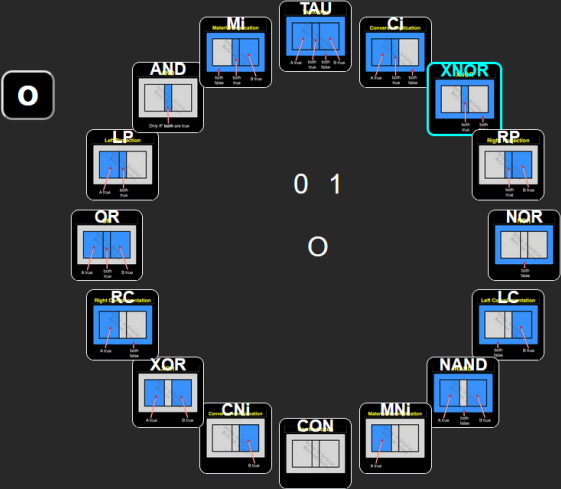| A	B		
0	0	=	1
0	1	=	0
1	0	=	1
1	1	=	1

Opposite is: Converse NonImplication

Topalian JavaScript True AI 16 Ga...
PLAYING

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates   100%

O

TAU
Mi
Ci
AND
XNOR
LP
RP

0   1

O

QR
NOR

RC
LC

XOR
NAND

CNi
MNi

CON

XNOR
Xnor
if ((a == 0 && b == 0) || (a == 1 && b == 1))
1001
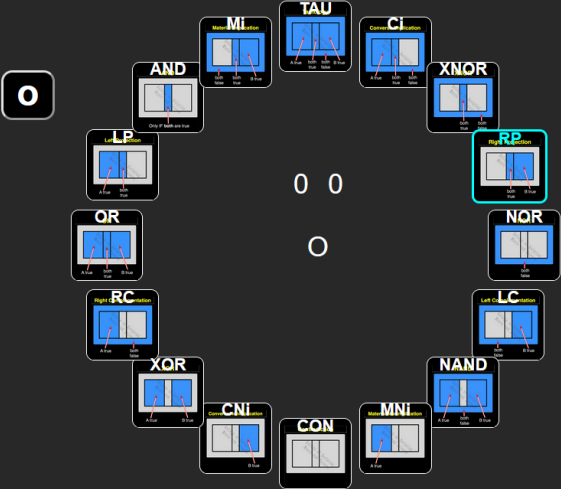
A	B		
0	0	=	1
0	1	=	0
1	0	=	0
1	1	=	1

Opposite is: Xor

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

Topalian JavaScript True AI 16 Gates

RP
Right Projection
if ((a == 0 && b == 1) || (a == 1 && b == 1))
0101

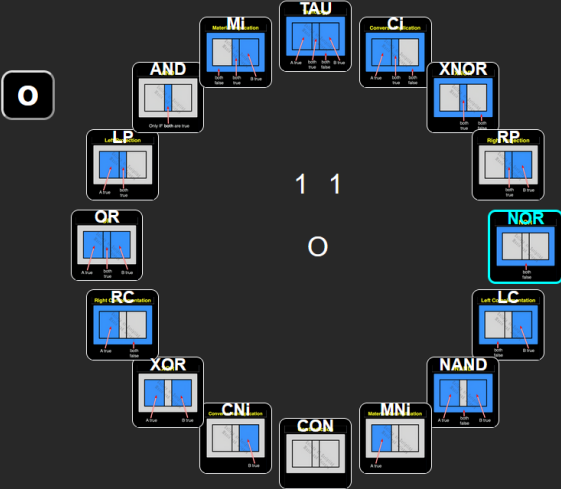| A	B		
0	0	=	0
0	1	=	1
1	0	=	0
1	1	=	1

Opposite is: Right Complementation

Topalian JavaScript True AI 16 Gates
PLAYING

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

100%

NOR
Nor
if (a == 0 && b == 0)
1000

A	B		
0	0	=	1
0	1	=	0
1	0	=	0
1	1	=	0

Opposite is: Or

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

LC
Left Complementation
if (a == 0)
1100
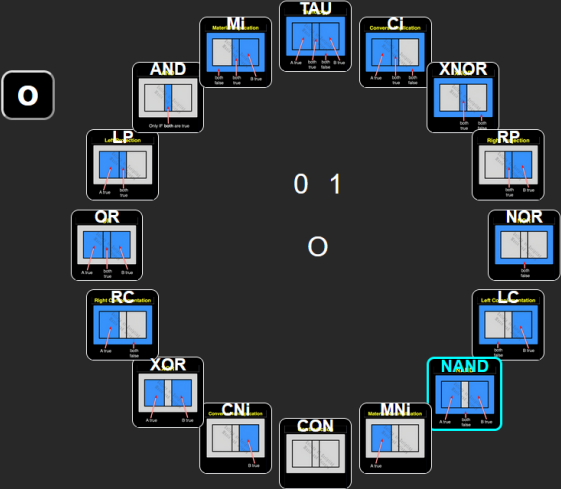
A	B		
0	0	=	1
0	1	=	1
1	0	=	0
1	1	=	0

Opposite is: Left Projection

NAND
Nand
if (a == 0 || b == 0)
1110

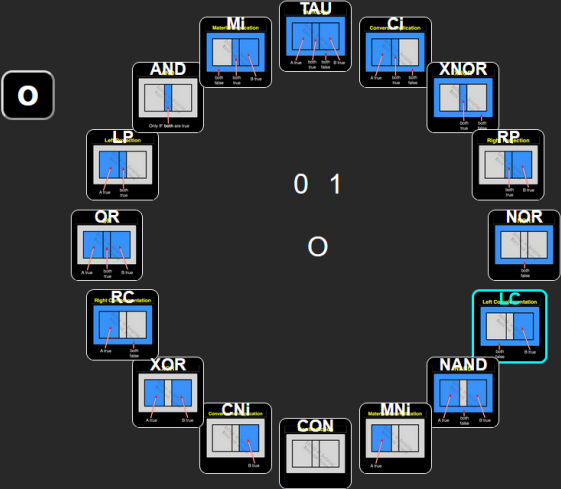| A	B		
0	0	=	1
0	1	=	1
1	0	=	1
1	1	=	0

Opposite is: And

Topalian JavaScript True AI 16 Gates
PLAYING

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

100%

MNi
Material NonImplication
if (a == 1 && b == 0)
0010
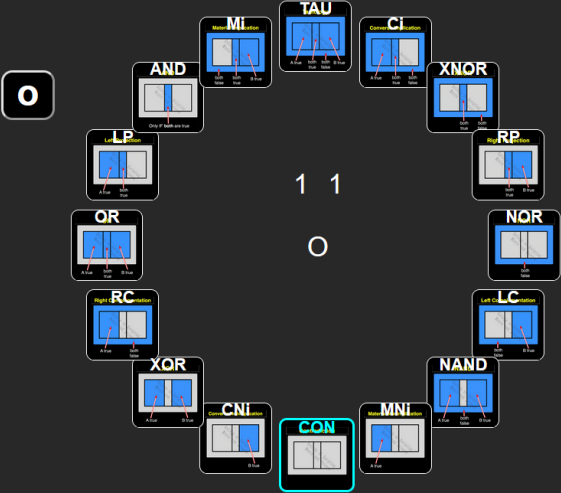
```
A   B
0   0   =   0
0   1   =   0
1   0   =   1
1   1   =   0
```
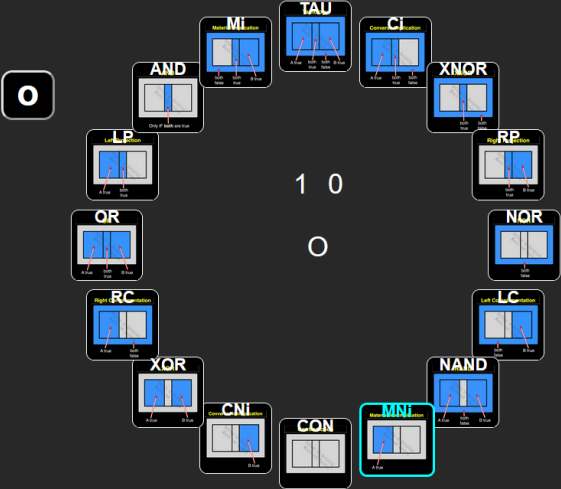
Opposite is: Material Implication

Topalian JavaScript True AI 16 Gates
PLAYING

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

100%

O

Mi
TAU
Ci
AND
XNOR
LP
RP
OR
NOR
RC
LC
XOR
NAND
CNi
CON
MNi

1 1

O

CON
Contradiction
if ((a == 0 && b == 0) || (a == 0 && b == 1) || (a == 1 && b == 0) || (a == 1 && b == 1))
0000

A	B		
0	0	=	0
0	1	=	0
1	0	=	0
1	1	=	0

Opposite is: Tautology

Topalian JavaScript True AI 16 G... ×

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

100%

O

TAU
Mi
Ci
AND
XNOR
LP
RP
OR
NOR
RC
LC
XOR
NAND
CNi
CON
MNi

1 1

O

CNi
Converse NonImplication
if (a == 0 && b == 1)
0100
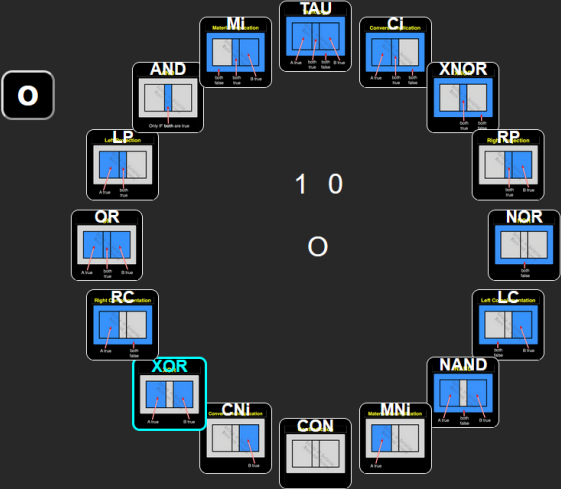
A	B		
0	0	=	0
0	1	=	1
1	0	=	0
1	1	=	0

Opposite is: Converse Implication

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

O

1 0

O

XOR
Xor
if ((a == 1 && b == 0) || (a == 0 && b == 1))
0110

A	B		
0	0	=	0
0	1	=	1
1	0	=	1
1	1	=	0

Opposite is: Xnor

RC
Right Complementation
if ((a == 0 && b == 0) || (a == 1 && b == 0))
1010

```
A    B
0    0    =    1
0    1    =    0
1    0    =    1
1    1    =    0
```

Opposite is: Right Projection

OR
Or
if (a == 1 || b == 1)
0111

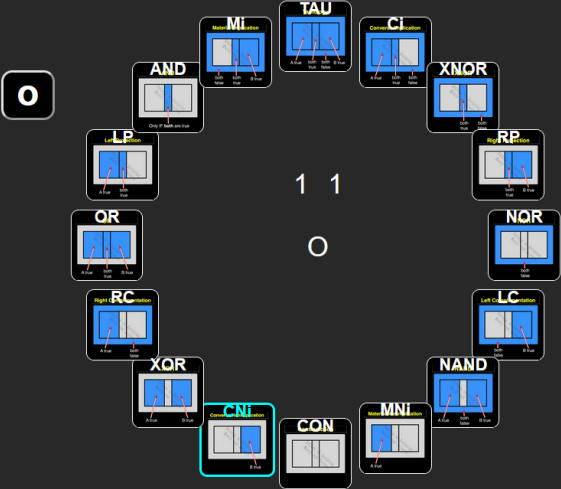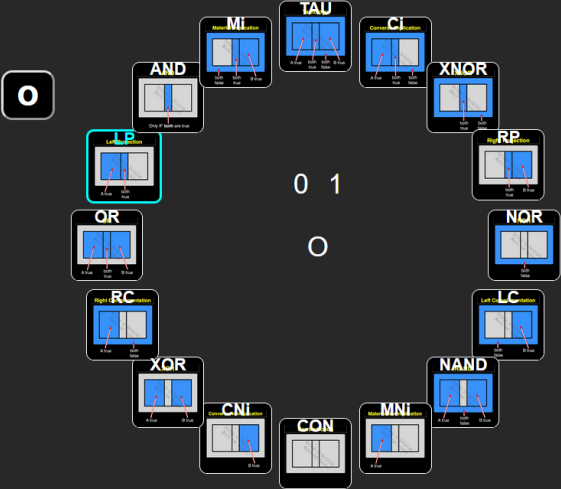| A	B		
0	0	=	0
0	1	=	1
1	0	=	1
1	1	=	1

Opposite is: Nor

1 1

O

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100%

LP
Left Projection
if (a == 1)
0011
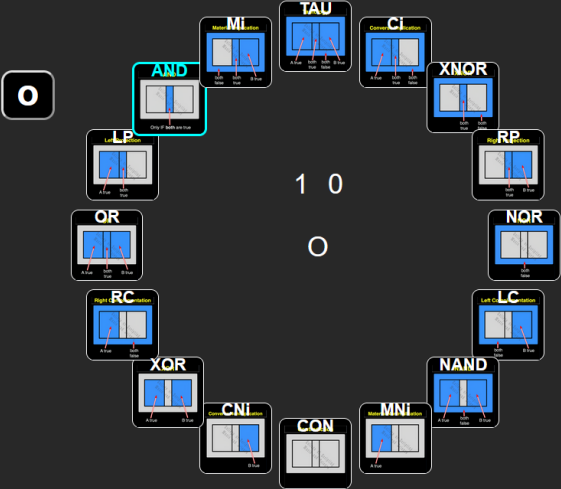
A	B		
0	0	=	0
0	1	=	0
1	0	=	1
1	1	=	1

Opposite is: Left Complementation

AND
And
if (a == 1 && b == 1)
0001
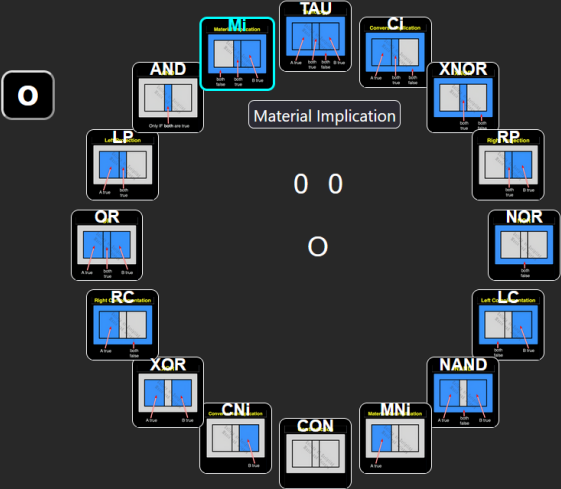
A	B		
0	0	=	0
0	1	=	0
1	0	=	0
1	1	=	1

Opposite is: Nand

Topalian JavaScript True AI 16 Gates

Mi
Material Implication
if (a == 0 || b == 1)
1101

A	B		
0	0	=	1
0	1	=	1
1	0	=	0
1	1	=	1

Opposite is: Material NonImplication

Topalian JavaScript True AI 16 Gates

file:///D:/_1Code/0_JS_Apps/Topalian_JavaScript_True_AI_16_Gates/Topalian_JavaScript_True_AI_16_Gates

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js

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1shortcuts

2worldVariables

3dataLogicGates

4dataSortedLogicGates

logicGateFunctions

make

random

sound

whenLoaded

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// https://github.com/ChristopherTopalian

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// HowToCombineJSFiles.js

TUTORIAL:
How to Combine all .js files in all folders that are in our js folder.

Getting things ready:

We should add two new lines at the end every script. This way they will combine nicely with a line break in between each script.

Step One: Open our js folder

Step Two: Type in the address bar of the js folder, **cmd**, press Enter

This opens our js folder in the command prompt

Step Three: Type the command shown below in the command prompt and then press Enter

for /r "%CD%" %i in (*.js) do type "%i" >> main.js

Now we have a newly created .js file named main.js that has all of our js files included into one file.

This makes it easy to upload our application and easy to find out how many lines of code our project is.
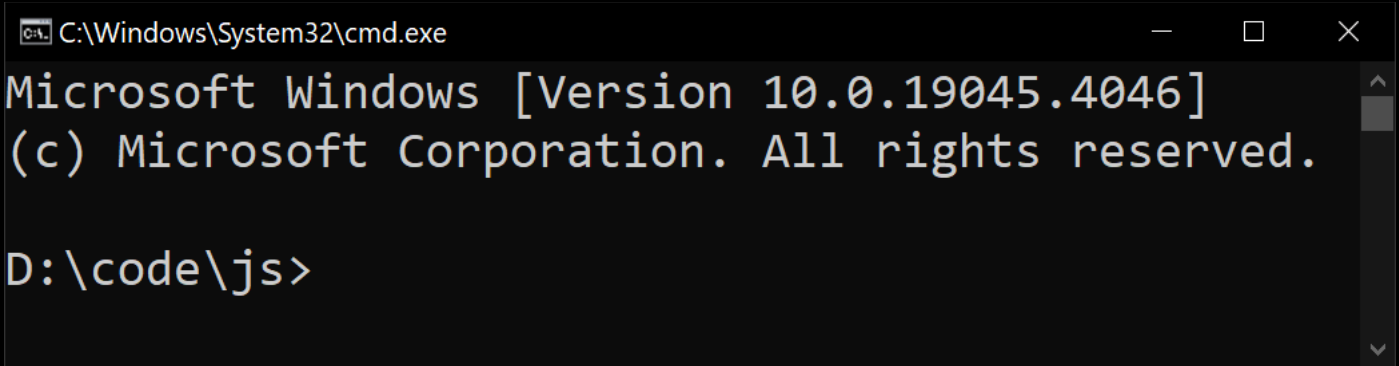
To use our main.js file, we include it in our html file code:
<script src = 'js/main.js'></script>

Happy Scripting :-)

We Left Click in our js folder address bar and type cmd and then press enter
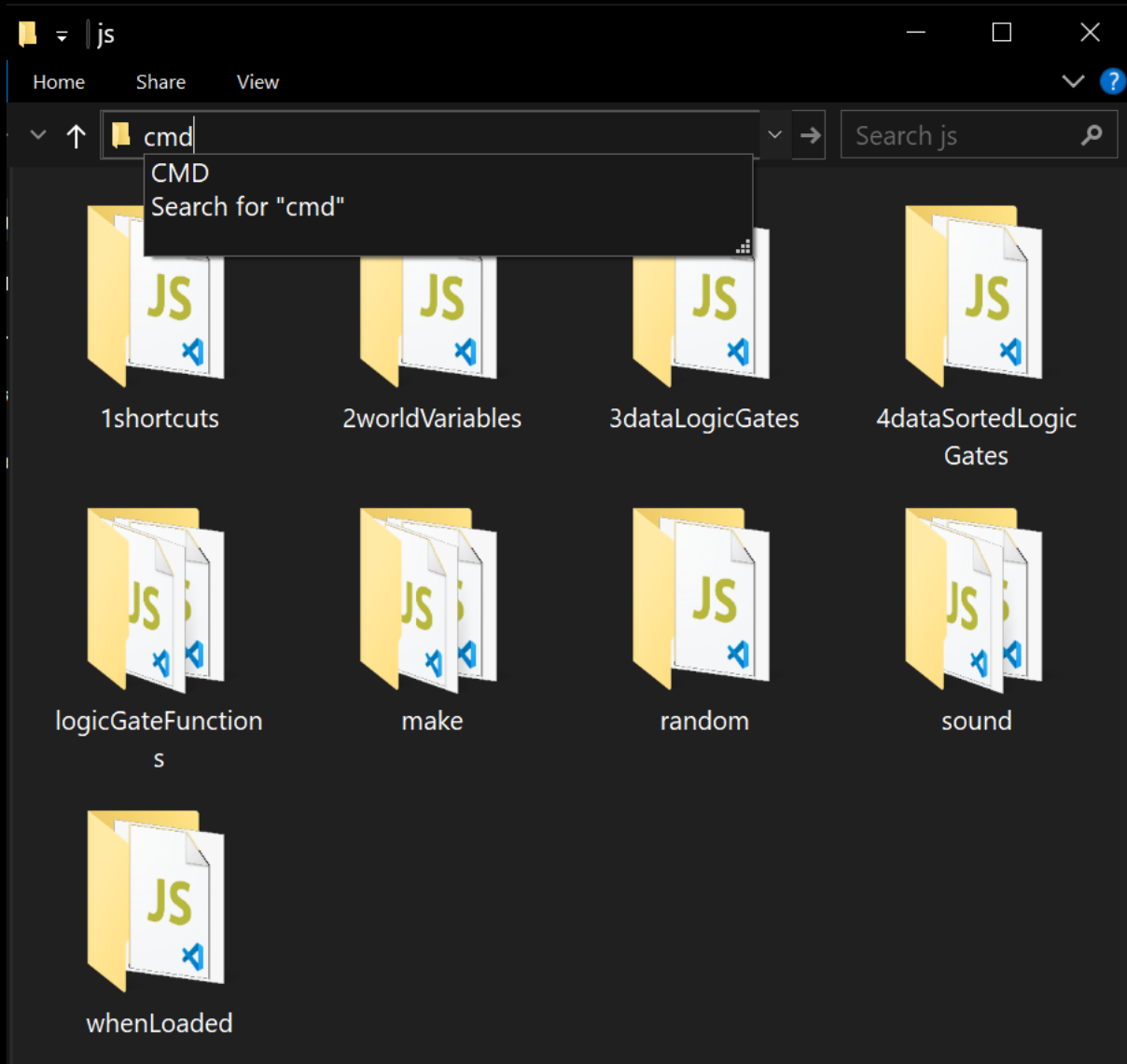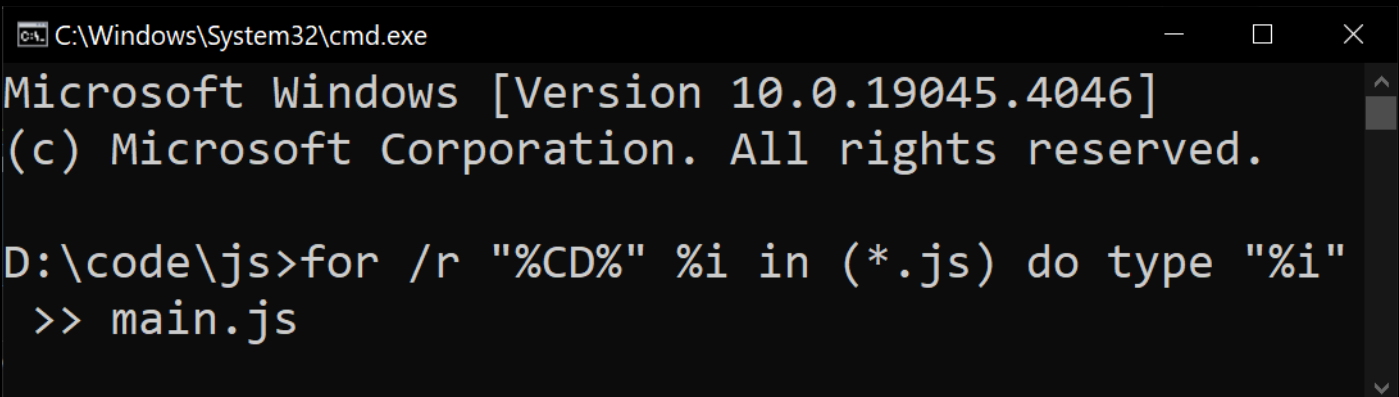
```
C:\Windows\System32\cmd.exe                              —    □    ✕

Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.


D:\code\js>
```

We type or paste this command:
for /r "%CD%" %i in (*.js) do type "%i" >> main.js

```
C:\Windows\System32\cmd.exe                              —    □    ✕

Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.


D:\code\js>for /r "%CD%" %i in (*.js) do type "%i"
 >> main.js
```

We then press enter

```
C:\Windows\System32\cmd.exe                                    —     □     ×

D:\code\js>for /r "%CD%" %i in (*.js) do type "%i" >> main.js

D:\code\js>type "D:\code\js\1shortcuts\shortcuts.js"  1>>main.js

D:\code\js>type "D:\code\js\2worldVariables\worldVariables.js"  1>
>main.js

D:\code\js>type "D:\code\js\3dataLogicGates\logicGates.js"  1>>mai
n.js

D:\code\js>type "D:\code\js\4dataSortedLogicGates\sortedGates.js"
 1>>main.js

D:\code\js>type "D:\code\js\logicGateFunctions\logicGateFunctions.
js"  1>>main.js

D:\code\js>type "D:\code\js\logicGateFunctions\logicGatesCheckInpu
ts.js"  1>>main.js

D:\code\js>type "D:\code\js\make\makeAppButton.js"  1>>main.js

D:\code\js>type "D:\code\js\make\makeCenterPoint.js"  1>>main.js
```

We can see that the scripts in our js folder have been copied into main.js
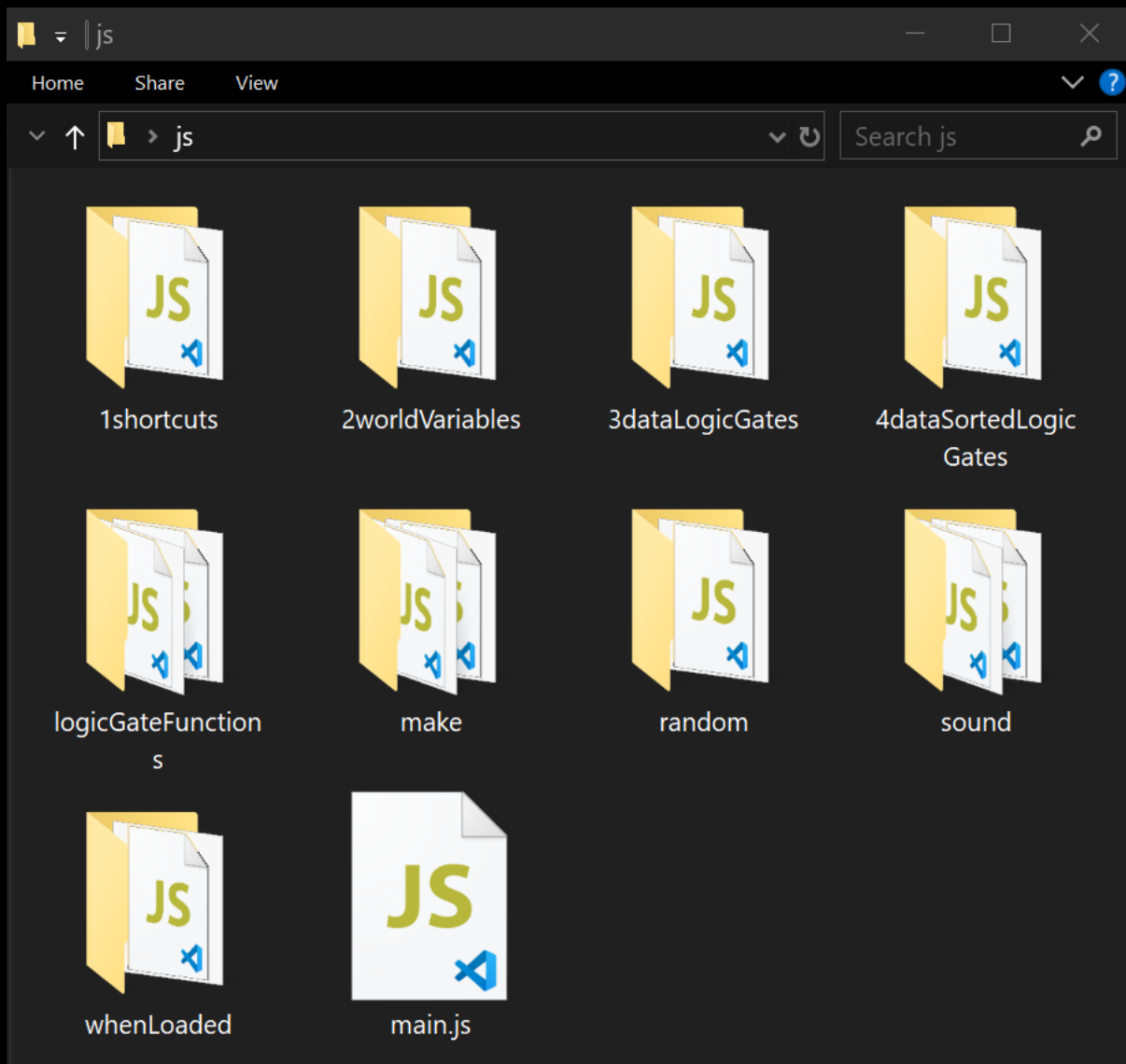
main.js now exists in our js folder.

Every script in our **js folder** has now been copied into this **main.js** file.
This makes it very easy to publish our application online.

We can also easily paste our code from this **main.js** file into a LibreOffice Writer file and export it as pdf to share the code with the world in book form.

In addition, by having this **main.js** file, we can easily check the total line count of our entire js folder of scripts.

Happy Scripting :-)

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<!-- https://github.com/ChristopherAndrewTopalian -->

<!-- Topalian_JavaScript_True_AI_16_Gates.html -->

<!-- Version 001 - (2024-03-07) -->

```html
<html>
<head>
<title> Topalian JavaScript True AI 16 Gates
</title>

<link rel = 'stylesheet' href =
'css/style001.css'>

<script src =
'js/1shortcuts/shortcuts.js'></script>

<script src =
'js/2worldVariables/worldVariables.js'></scrip
t>

<script src =
'js/3dataLogicGates/logicGates.js'></script>
```

```html
<script src =
'js/4dataSortedLogicGates/sortedGates.js'></
script>

<script src =
'js/logicGateFunctions/logicGateFunctions.js'
></script>

<script src =
'js/logicGateFunctions/logicGatesCheckInput
s.js'></script>

<script src =
'js/make/makeAppButton.js'></script>

<script src =
'js/make/makeCenterPoint.js'></script>
```

```
<script src =
'js/make/makeCircleOfDivs.js'></script>

<script src =
'js/make/makeTitleOfApp.js'></script>

<script src =
'js/make/makeInputVariables.js'></script>

<script src =
'js/random/randomInputs.js'></script>

<script src =
'js/sound/dataSounds.js'></script>

<script src =
'js/sound/loadSounds.js'></script>
```

```
<script src = 'js/sound/audioPlay.js'></script>

<script src =
'js/whenLoaded/whenLoaded.js'></script>

</head>

<body onload = 'whenLoaded();'>

</body>

</html>
```

```css
/* Dedicated to God the Father */

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/* https://github.com/ChristopherTopalian */

/*
https://github.com/ChristopherAndrewTopalia
n */

/* style001.css */

body
{
    background-color: rgb(40, 40, 40);
    color: rgb(255, 255, 255);
    overflow: none;
```

```css
    }


a
{
    text-decoration: none;
    color: rgb(100, 100, 100);
}


a:hover
{
    text-decoration: underline;
}


pre
{
    font-size: 20px;
}
```

```css
b
{
    color: rgb(0, 255, 255);
}


.buttonContainer
{
    display: flex;
    flex-direction: row;
}


.square
{
    background-color: rgb(0, 0, 0);
    border: 1px solid rgb(255, 255, 255);
    border-radius: 5px;
    padding-left: 3px;
    padding-right: 3px;
```

```css
    padding-top: 5px;
    font-size: 12px;
    text-align: center;
    line-height: 0px;
}


.square:hover
{

    border-style: solid;
    border-width: 2px;
    cursor: pointer;
}


.square:active
{

    cursor: grabbing;
}
```

```css
.buttonDivCircle
{
    background-color: rgb(0, 0, 0);
    border-radius: 8px;
    padding-left: 10px;
    padding-right: 10px;
    padding-top: 4.2px;
    padding-bottom: 4px;
    font-size: 20px;
    font-weight: bold;
    color: rgb(255, 255, 255);
}

.buttonDivCircle:hover
{
    border-color: rgb(0, 255, 255);
    cursor: pointer;
}
```

```css
.buttonDivCircle:active
{
    border-color: rgb(0, 255, 255);
    border-width: 4px;
    color: rgb(0, 255, 255);
    cursor: grabbing;
}
```

```
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//
https://github.com/ChristopherAndrewTopalia
n

// shortcuts.js

function ge(whichId)
{
    let result =
document.getElementById(whichId);
```

```
        return result;
    }


function ce(whichType)
{
    let result =
document.createElement(whichType);


    return result;
}


function ba(whichElement)
{
    let result =
document.body.append(whichElement);


    return result;
}
```

```
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//
https://github.com/ChristopherAndrewTopalia
n

// worldVariables.js

let online = false;
```

```javascript
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// https://github.com/ChristopherTopalian

//
https://github.com/ChristopherAndrewTopalia
n

// logicGates.js

let logicGates =
[
    {
        name: "And",
        abbreviation: 'AND',
```

```
    imgSrcOffline:
'media/textures/topalianDiagrams/and.png',
    imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/and_orig.png',
    function: "gateAnd(a, b)",
    formula: "if (a == 1 && b == 1)",
    opposite: "Nand",
    truthTable: "0001",
    order: 7,
    truthTableFormatted: `
    A  B
    0  0  =  0
    0  1  =  0
    1  0  =  0
    1  1  =  1
    `

  },
```

```
    {
        name: "Nand",
        abbreviation: 'NAND',
        imgSrcOffline:
'media/textures/topalianDiagrams/nand.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/nand_orig.png',
        function: "gateNand(a, b)",
        formula: "if (a == 0 || b == 0)",
        opposite: "And",
        truthTable: "1110",
        order: 10,
        truthTableFormatted: `
        A  B
        0  0  =  1
        0  1  =  1
```

```
    1  0  =  1
    1  1  =  0
    `

  },

  {
    name: "Or",
    abbreviation: 'OR',
    imgSrcOffline:
'media/textures/topalianDiagrams/or.png',
    imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/or_orig.png',
    function: "gateOr(a, b)",
    formula: "if (a == 1 || b == 1)",
    opposite: "Nor",
    truthTable: "0111",
    order: 13,
```

```
    truthTableFormatted: `
    A  B
    0  0  =  0
    0  1  =  1
    1  0  =  1
    1  1  =  1
    `

  },

  {

    name: "Nor",
    abbreviation: 'NOR',
    imgSrcOffline:
'media/textures/topalianDiagrams/nor.png',
    imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/nor_orig.png',
    function: "gateNor(a, b)",
```

```
    formula: "if (a == 0 && b == 0)",
    opposite: "Or",
    truthTable: "1000",
    truthTableFormatted: `
    A  B
    0  0  =  1
    0  1  =  0
    1  0  =  0
    1  1  =  0
    `

  },

  {

    name: "Xor",
    abbreviation: 'XOR',
    imgSrcOffline:
'media/textures/topalianDiagrams/xor.png',
```

```
    imgSrcOnline: 'https://collegeofscripting.weebly.com/uploads/6/4/4/8/64482293/xor_orig.png',
    function: "gateXor(a, b)",
    formula: "if ((a == 1 && b == 0) || (a == 0 && b == 1))",
    opposite: "Xnor",
    truthTable: "0110",
    truthTableFormatted: `
    A  B
    0  0  =  0
    0  1  =  1
    1  0  =  1
    1  1  =  0
    `
  },

  {
```

```
name: "Xnor",
abbreviation: 'XNOR',
imgSrcOffline:
'media/textures/topalianDiagrams/xnor.png',
imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/xnor_orig.png',
function: "gateXnor(a, b)",
formula: "if ((a == 0 && b == 0) || (a == 1
&& b == 1))",
opposite: "Xor",
truthTable: "1001",
truthTableFormatted: `
A  B
0  0  =  1
0  1  =  0
1  0  =  0
1  1  =  1
```

```
        `
    },

    {
        name: "Converse Implication",
        abbreviation: 'Ci',
        imgSrcOffline:
'media/textures/topalianDiagrams/converse_i
mplication.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/converse-
implication_orig.png',
        function: "gateCi(a, b)",
        formula: "if (a == 1 || b == 0)",
        opposite: "Converse NonImplication",
        truthTable: "1011",
        truthTableFormatted: `
```

```
A  B
0  0  =  1
0  1  =  0
1  0  =  1
1  1  =  1
`
},

{
    name: "Converse NonImplication",
    abbreviation: 'CNi',
    imgSrcOffline:
'media/textures/topalianDiagrams/converse_n
on_implication.png',
    imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/converse-non-
implication_orig.png',
```

```
    function: "gateCni(a, b)",
    formula: "if (a == 0 && b == 1)",
    opposite: "Converse Implication",
    truthTable: "0100",
    truthTableFormatted: `
    A  B
    0  0  =  0
    0  1  =  1
    1  0  =  0
    1  1  =  0
    `
},

{

    name: "Material Implication",
    abbreviation: 'Mi',
```

    imgSrcOffline: 'media/textures/topalianDiagrams/material_implication.png',
    imgSrcOnline: 'https://collegeofscripting.weebly.com/uploads/6/4/4/8/64482293/material-implication_orig.png',
    function: "gateMi(a, b)",
    formula: "if (a == 0 || b == 1)",
    opposite: "Material NonImplication",
    truthTable: "1101",
    truthTableFormatted: `
    A B
    0 0 = 1
    0 1 = 1
    1 0 = 0
    1 1 = 1
    `

```
    },

    {
        name: "Material NonImplication",
        abbreviation: 'MNi',
        imgSrcOffline:
'media/textures/topalianDiagrams/material_n
on_implication.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/material-non-
implication_orig.png',
        function: "gateMni(a, b)",
        formula: "if (a == 1 && b == 0)",
        opposite: "Material Implication",
        truthTable: "0010",
        truthTableFormatted: `
        A  B
```

```
        0   0   =   0
        0   1   =   0
        1   0   =   1
        1   1   =   0
        `

    },

    {

        name: "Right Projection",
        abbreviation: 'RP',
        imgSrcOffline:
'media/textures/topalianDiagrams/right_proje
ction.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/right-projection_orig.png',
        function: "gateRp(a, b)",
```

```
    formula: "if ((a == 0 && b == 1) || (a == 1
&& b == 1))",
    opposite: "Right Complementation",
    truthTable: "0101",
    truthTableFormatted: `
    A  B
    0  0  =  0
    0  1  =  1
    1  0  =  0
    1  1  =  1
    `
  },

  {

    name: "Right Complementation",
    abbreviation: 'RC',
```

```
      imgSrcOffline:
'media/textures/topalianDiagrams/right_comp
lementation.png',
      imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/right-
complementation_orig.png',
      function: "gateRc(a, b)",
      formula: "if ((a == 0 && b == 0) || (a == 1
&& b == 0))",
      opposite: "Right Projection",
      truthTable: "1010",
      truthTableFormatted: `
      A  B
      0  0  =  1
      0  1  =  0
      1  0  =  1
      1  1  =  0
```

```
          `
     },

     {
          name: "Left Projection",
          abbreviation: 'LP',
          imgSrcOffline:
'media/textures/topalianDiagrams/left_project
ion.png',
          imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/left-projection_orig.png',
          function: "gateLp(a, b)",
          formula: "if (a == 1)",
          opposite: "Left Complementation",
          truthTable: "0011",
          truthTableFormatted: `
          A  B
```

```
        0  0  =  0
        0  1  =  0
        1  0  =  1
        1  1  =  1
        `

    },

    {

        name: "Left Complementation",
        abbreviation: 'LC',
        imgSrcOffline:
'media/textures/topalianDiagrams/left_comple
mentation.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/left-
complementation_orig.png',
        function: "gateLc(a, b)",
```

```
    formula: "if (a == 0)",
    opposite: "Left Projection",
    truthTable: "1100",
    truthTableFormatted: `
    A  B
    0  0  =  1
    0  1  =  1
    1  0  =  0
    1  1  =  0
    `

},

{

    name: "Tautology",
    abbreviation: 'TAU',
    imgSrcOffline:
'media/textures/topalianDiagrams/tautology.p
ng',
```

```
    imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/tautology_orig.png',
    function: "gateTautology(a, b)",
    formula: "if ((a == 0 && b == 0) || (a == 0
&& b == 1) || (a == 1 && b == 0) || (a == 1 && b
== 1))",
    opposite: "Contradiction",
    truthTable: "1111",
    order: 6,
    truthTableFormatted: `
    A  B
    0  0  =  1
    0  1  =  1
    1  0  =  1
    1  1  =  1
    `
  },
```

```
    {
        name: "Contradiction",
        abbreviation: 'CON',
        imgSrcOffline:
'media/textures/topalianDiagrams/contradicti
on.png',
        imgSrcOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/contradiction_orig.png',
        function: "gateContradiction(a, b)",
        formula: "if ((a == 0 && b == 0) ||  (a == 0
&& b == 1) || (a == 1 && b == 0) || (a == 1 && b
== 1))",
        opposite: "Tautology",
        truthTable: "0000",
        order: 8,
        truthTableFormatted: `
```

```
    A  B
    0  0  =  0
    0  1  =  0
    1  0  =  0
    1  1  =  0
    `

   }
];
```

```
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//
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n

// sortedArray.js

let sortedArray =
[
    logicGates.find(function(gate)
    {
        return gate.name === 'Tautology';
```

```javascript
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Converse
Implication';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Xnor';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Right Projection';
    }),
```

```javascript
logicGates.find(function(gate)
{
    return gate.name === 'Nor';
}),

logicGates.find(function(gate)
{
    return gate.name === 'Left
Complementation';
}),

logicGates.find(function(gate)
{
    return gate.name === 'Nand';
}),

logicGates.find(function(gate)
{
```

```
        return gate.name === 'Material
NonImplication';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Contradiction';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Converse
NonImplication';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Xor';
```

```javascript
        }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Right
Complementation';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Or';
    }),

    logicGates.find(function(gate)
    {
        return gate.name === 'Left Projection';
    }),
```

```
logicGates.find(function(gate)
{
    return gate.name === 'And';
}),

logicGates.find(function(gate)
{
    return gate.name === 'Material
Implication';
})
];
```

```javascript
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n

// logicGateFunctions.js

function gateAnd(a, b)
{
    if (a == 1 && b == 1)
    {
        return "Both True";
```

```
    }
    else
    {
        return 0;
    }
}

function gateNand(a, b)
{
    /*
    if ((a == 0 && b == 0) ||
        (a == 1 && b == 0) ||
        (a == 0 && b == 1))
    */

    if (a == 0 || b == 0)
    {
        return "Both False or A True or B True"
```

```
    }
    else
    {
        return 0;
    }
}

function gateOr(a, b)
{
    /*
    if ((a == 1 && b == 0) ||
        (a == 0 && b == 1) ||
        (a == 1 && b == 1))
    */

    if (a == 1 || b == 1)
    {
        return "One or Both True";
```

```
        }
    else
    {
        return 0;
    }
}


function gateNor(a, b)
{
    if (a == 0 && b == 0)
    {
        return "Both False";
    }
    else
    {
        return 0;
    }
}
```

```
function gateXor(a, b)
{
    if ((a == 1 && b == 0) ||
        (a == 0 && b == 1))
    {
        return "A True or B True";
    }
    else
    {
        return 0;
    }
}

function gateXnor(a, b)
{
    if ((a == 0 && b == 0) ||
        (a == 1 && b == 1))
```

```
    {
        return "Both False or Both True";
    }
    else
    {
        return 0;
    }
}

function gateCi(a, b)
{
    /*
    if ((a == 0 && b == 0) ||
        (a == 1 && b == 0) ||
        (a == 1 && b == 1))
    */

    if (a == 1 || b == 0)
```

```
    {
        return "Both False or A True or Both
True";
    }
    else
    {
        return 0;
    }
}


function gateCni(a, b)
{
    if (a == 0 && b == 1)
    {
        return "B True";
    }
    else
    {
```

```
        return 0;
    }
}


function gateMi(a, b)
{
    /*
    if ((a == 0 && b == 0) ||
        (a == 0 && b == 1) ||
        (a == 1 && b == 1))
    */

    if (a == 0 || b == 1)
    {
        return "Both False or B True or Both
True";
    }
    else
```

```
        {
            return 0;
        }
    }


function gateMni(a, b)
{
    if (a == 1 && b == 0)
    {
        return "A True";
    }
    else
    {
        return 0;
    }
}


function gateRp(a, b)
```

```
{
    if ((a == 0 && b == 1) ||
        (a == 1 && b == 1))
    {
        return "B True or Both True";
    }
    else
    {
        return 0;
    }
}

function gateRc(a, b)
{
    if ((a == 0 && b == 0) ||
        (a == 1 && b == 0))
    {
        return "Both False or A True";
```

```
    }
    else
    {
        return 0;
    }
}


function gateLp(a, b)
{
    /*
    if ((a == 1 && b == 0) ||
        (a == 1 && b == 1))
    */

    if (a == 1)
    {
        return "A True or Both True";
    }
```

```
    else
    {
        return 0;
    }
}


function gateLc(a, b)
{
    /*
    if ((a == 0 && b == 0) ||
        (a == 0 && b == 1))
    */

    if (a == 0)
    {
        return "Both False or B True";
    }
    else
```

```
        {
            return 0;
        }
    }


function gateTautology(a, b)
{
    if ((a == 0 && b == 0) ||
        (a == 0 && b == 1) ||
        (a == 1 && b == 0) ||
        (a == 1 && b == 1))
    {
        return "One or Both False or True";
    }
    else
    {
        return 0;
    }
```

```
}

function gateContradiction(a, b)
{
    if ((a == 0 && b == 0) ||
        (a == 0 && b == 1) ||
        (a == 1 && b == 0) ||
        (a == 1 && b == 1))
    {
        return "One or Both False or True.
Negative Message is placed here, or we can
leave it blank";
    }
    else
    {
        return 0;
    }
}
```

```javascript
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// logicGatesCheckInputs.js

let timerAi;

function logicGatesCheckInputs()
{
    timerAi = setInterval(function()
```

```
{
    let a = ge('inputA').innerHTML;

    let b = ge('inputB').innerHTML;

    gateAnd(a, b);
    gateNand(a, b);

    gateOr(a, b);
    gateNor(a, b);

    gateXor(a, b);
    gateXnor(a, b);

    gateCi(a, b);
    gateCNi(a, b);

    gateMi(a, b);
```

```
        gateMNi(a, b);

        gateRP(a, b);
        gateRC(a, b);

        gateLP(a, b);
        gateLC(a, b);

        gateTautology(a, b);
        gateContradiction(a, b);
    }, 100);
}
```

```
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// makeAppButton.js

function makeAppButton()
{
    // buttonContainer
    let buttonContainer = ce('div');
    buttonContainer.id = 'buttonContainer';
```

```
    buttonContainer.className =
'buttonContainer';
    buttonContainer.style.position = 'absolute';
    buttonContainer.style.left = '100px';
    buttonContainer.style.top = '100px';
    ba(buttonContainer);

    //-//

    // buttonDivCircle
    let buttonDivCircle = ce('button');
    buttonDivCircle.innerHTML = 'O';
    buttonDivCircle.id = 'buttonDivCircle';
    buttonDivCircle.className =
'buttonDivCircle';
    buttonDivCircle.onclick = function()
    {
        audioPlay('sfx_blip_001', 1.0);
```

```
if (ge('circleContainer'))
{
    ge('circleContainer').remove();
    ge('marker').remove();
    ge('inputA').remove();
    ge('inputB').remove();
}
else
{
    makeInputVariables();

    makeCircleOfDivs(sortedArray);

    setTimeout(function()
    {
        makeCenterPoint();
    }, 1000);
```

```
        }
    };
    buttonContainer.append(buttonDivCircle);
}
```

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// makeCenterPoint.js

function makeCenterPoint()
{
    let marker = ce('div');
    marker.innerHTML = 'O';
    marker.id = 'marker';
```

```
        marker.style.position = 'absolute';
        marker.style.left = 320 + 'px';
        marker.style.top = 215 + 'px';
        marker.style.zIndex = 2;
        ba(marker);
    }
```

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// makeCircleOfDivs.js

function makeCircleOfDivs(whichArray)
{
    // circleContainer
    let circleContainer = ce('div');
    circleContainer.id = 'circleContainer';
```

```
ba(circleContainer);

//-//

// infoDiv
let infoDiv = ce('div');
infoDiv.id = 'infoDiv';
infoDiv.className = 'infoDiv';
infoDiv.style.position = 'absolute';
infoDiv.style.left =
ge('buttonContainer').getBoundingClientRect(
).x + 420;
infoDiv.style.top =
ge('buttonContainer').getBoundingClientRect(
).y + -40;
infoDiv.style.margin = '30px';
circleContainer.append(infoDiv);
```

```
let radius = 150;

let centerX =
ge('buttonContainer').getBoundingClientRect(
).x + 200;

let centerY =
ge('buttonContainer').getBoundingClientRect(
).y + 100;

//-//

for (let i = 0; i < whichArray.length; i++)
{
    let angle = (Math.PI * 2) /
whichArray.length * i - Math.PI / 2;
```

```javascript
let x = centerX + radius * Math.cos(angle);

let y = centerY + radius * Math.sin(angle);

//-//

// square
let square = ce('div');
square.title = whichArray[i].name;
square.id = 'square' + i;
square.className = 'square';
square.style.position = 'absolute';
square.style.left = x + 'px';
square.style.top = y + 'px';
square.style.width = '45px';
square.style.height = '45px';
```

```
    square.style.backgroundColor = 'rgb(0,
0, 0)';

    //-//

    // nameOfGate
    let nameOfGate = ce('div');
    nameOfGate.innerHTML =
whichArray[i].abbreviation;
    nameOfGate.style.position = 'relative';
    nameOfGate.style.zIndex = '2';
    nameOfGate.style.fontWeight = 'bold';
    square.append(nameOfGate);

    // onclick
    square.onclick = function()
    {
        audioPlay('sfx_blip_001', 1.0);
```

```
ge('infoDiv').innerHTML =
whichArray[i].abbreviation.bold() + '<br>' +
whichArray[i].name +
'<br>' +
whichArray[i].formula.bold() +
'<br>' +
whichArray[i].truthTable +
'<br>'
+'<pre>'+whichArray[i].truthTableFormatted +
'</pre>' + 'Opposite is: ' +
whichArray[i].opposite +
'<br>';

ge('square' + i).style.color = 'rgb(255,
0, 255)';
    };
```

```
// onmouseover
square.onmouseover = function()
{
    audioPlay('sfx_warp_001', 1.0);

    square.style.borderColor = 'rgb(0, 255, 255)';
    square.style.color = 'rgb(0, 255, 255)';
};

// onmouseout
square.onmouseout = function()
{
    square.style.borderColor = 'rgb(255, 255, 255)';
    square.style.color = 'rgb(255, 255, 255)';
};
```

```javascript
    circleContainer.append(square);


    //-//


    let topalianDiagram = ce('img');
    topalianDiagram.style.maxWidth =
'100%';
    topalianDiagram.style.height = 'auto';
    if (online == false)
    {
        topalianDiagram.src =
whichArray[i].imgSrcOffline;
    }
    else
    {
        topalianDiagram.src =
whichArray[i].imgSrcOnline;
    }
```

```
        square.append(topalianDiagram);
    }
}
```

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// makeInputVariables.js

function makeInputVariables()
{
    let inputA = ce('div');
    inputA.innerHTML =
Math.round(Math.random());
```

```
inputA.id = 'inputA';
inputA.style.position = 'absolute';
inputA.style.left = 310 + 'px';
inputA.style.top = 170 + 'px';
inputA.style.zIndex = 2;
ba(inputA);

//-//

let inputB = ce('div');
inputB.innerHTML =
Math.round(Math.random());
inputB.id = 'inputB';
inputB.style.position = 'absolute';
inputB.style.left = 335 + 'px';
inputB.style.top = 170 + 'px';
inputB.style.zIndex = 2;
ba(inputB);
```

}

```
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// makeTitleOfApp.js

function makeTitleOfApp()
{
    let titleContainer =
document.createElement('div');
    titleContainer.style.position = 'absolute';
```

```javascript
        titleContainer.style.right = '10px';
        titleContainer.style.top = '5px';
        titleContainer.style.zIndex = 1;
        titleContainer.style.fontWeight = 'bold';
        ba(titleContainer);

        //-//

        let titleTextDiv =
document.createElement('div');
        titleTextDiv.innerHTML =
        `<a href =
'https://github.com/christophertopalian/Topali
an_JavaScript_True_AI_16_Gates' target =
'_blank'>Topalian JavaScript True AI 16
Gates</a>`;
        titleTextDiv.style.fontSize = '15px';
```

```
    titleTextDiv.style.color = 'rgb(120, 120,
120)';
    titleContainer.append(titleTextDiv);
}
```

```javascript
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// randomInputs.js

let timer001;

function randomInputs()
{
    timer001 = setInterval(function()
```

```
    {

        ge('inputA').innerHTML =
Math.round(Math.random());


        ge('inputB').innerHTML =
Math.round(Math.random());
    }, 100);
}
```

```
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// audioPlay.js

function audioPlay(whichId, whichVolume)
{
    if (ge(whichId))
    {
        ge(whichId).volume = whichVolume;
```

```
        ge(whichId).play();
    }
}
```

```javascript
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// dataSounds.js

let sounds =
[
    {
        name: 'sfx_blip_001',
```

```
      soundFileOffline:
'media/sounds/sfx_blip_001.mp4',
      soundFileOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/sfx_blip_001.mp4'
   },

   {

      name: 'sfx_warp_001',
      soundFileOffline:
'media/sounds/sfx_warp_001.mp3',
      soundFileOnline:
'https://collegeofscripting.weebly.com/upload
s/6/4/4/8/64482293/sfx_warp_001.mp4'
   }
];
```

```javascript
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// loadSounds.js

function loadSounds(whichArray)
{
    for (let x = 0; x < whichArray.length; x++)
    {
        let theSound = ce('audio');
```

```
if (online == false)
{
    theSound.src =
whichArray[x].soundFileOffline;
}
else
{
    theSound.src =
whichArray[x].soundFileOnline;
}
theSound.id = whichArray[x].name;
theSound.loop = false;
theSound.volume = 1.0;
ba(theSound);
}
}
```

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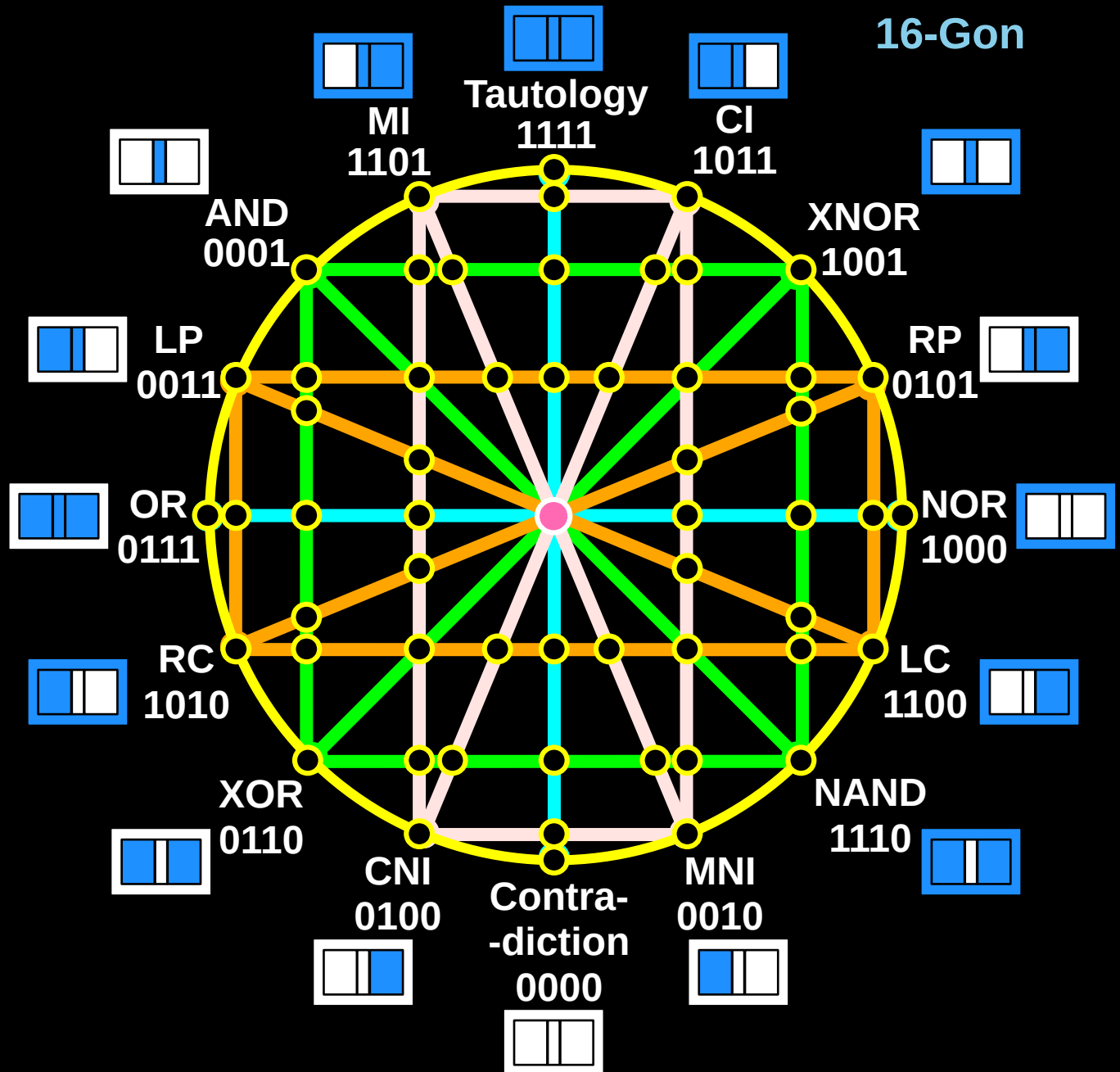// https://github.com/ChristopherTopalian

// https://github.com/ChristopherAndrewTopalian

// whenLoaded.js

```
function whenLoaded()
{
    loadSounds(sounds);

    makeAppButton();
```

```
makeTitleOfApp();

setTimeout(function()
{
    randomInputs();
}, 1000);
}
```

True Artificial Intelligence System

16-Gon

Tautology
1111

MI
1101

CI
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AND
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LP
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OR
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NOR
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RC
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LC
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XOR
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NAND
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CNI
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MNI
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Contra-
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GitHub.com/ChristopherAndrewTopalian

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Dedicated to God the Father

This book is created by the
College of Scripting Music & Science.
Always remember, that each time you write a script
with a pencil and paper, it becomes imprinted so
deeply in memory that the material and methods are
learned extremely well.

When you Type the scripts, the same is true. The
more you type and write out the scripts by keyboard
or pencil and paper, the more you will learn
programming!

Write and Type every example that you find.
Keep all of your scripts organized.
Every script that you create increases your
programming abilities.
SEEING CODE, is one thing,
but WRITING CODE is another.
Write it, Type it, Speak It, See It, Dream It.

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