

Learning to Speak C

ESC101: Foundations of Computing

Purushottam Kar

Announcements

- Website updates
 - Link to Hindi Lectures and websites for practice/challenge added
 - Slides for Monday lecture added
- Small changes in evaluation policy (see website)
 - Number of minor quizzes reduced 😊
 - Bonus/practice problems introduced
 - All quizzes, exams, labs will be open handwritten notes
 - No photocopies, printouts, electronic material (penalty if found)
- ESC101 sections are only for ESC101 for now
 - Trying our best to make sure sections same for all courses

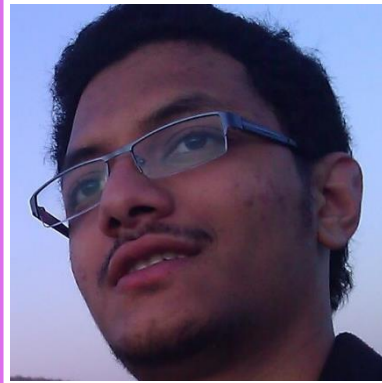


Announcements

- Prutor availability
 - During lab hours, only in NCL labs
 - Outside lab hours, hostels, CC, NCL etc (NCL open till 2AM ☺)
- Languages: C and maybe Python at the end
- Advice for protecting yourself from unfair blame
 - Do not share your CC password with anybody
 - Logout from Prutor **AND** lock/logout NCL computer before leaving
 - Not locking/logging out allows intruders to hack your CC account
 - Bulk copy-paste on Prutor may set off alert for copying
 - Don't worry, we will not blame you without first asking you



New Course Admin



Umair Z. Ahmed (Prutor Lead)

Co-creator of Prutor
Hindi, English



The C Language

5

Name suggests it is a “language” like Bengali, Tamil

Who speaks this language?

Introducing Mr. C Compiler

Other pet names: Compiler, Prutor, Computer

Will warn us if we are speaking C language wrong

Will help us correct our mistakes as well

Our friend but is very strict about rules

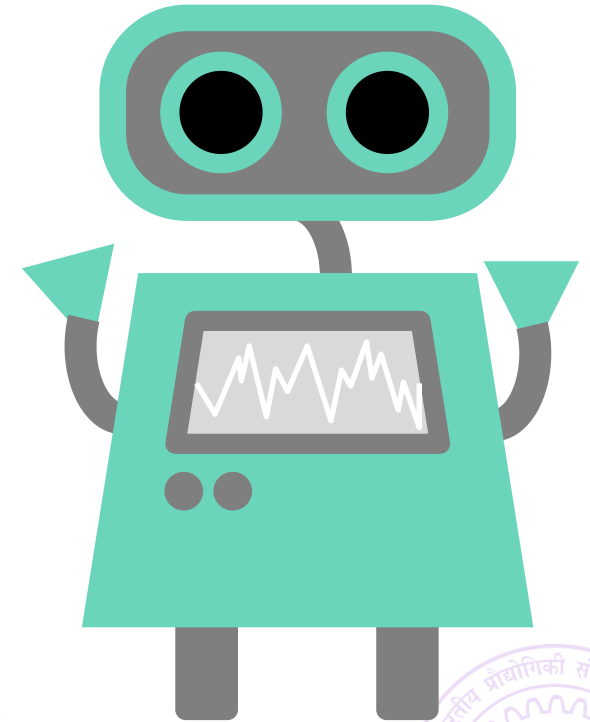
You are going to learn a new language

Be patient at the beginning

Some things may seem unfamiliar, strange for few days

Will get used to these very quickly

Best way to learn a new language – speak it and practice!



The need for programming

6

Computer usage is everywhere

Engineering (civil, chemical), Sciences, Economics, AI

<https://www.youtube.com/watch?v=nKlu9yen5nc>

Even artists, comedians need to code 😊

<https://www.youtube.com/watch?v=EFwa5Owp0-k>

Be prepared for the future – job markets changing rapidly

People who can code often deal with problems in day to day life in more efficient manner

I already know how to code (some other language)

Do well in the first few weeks and use advanced track, bonus problems

I have no programming experience

This course is meant exactly for you

If you work with us, you will finish this course as an expert programmer



My first C Program!

- How to speak with Mr. Compiler (in his language C)
- How to get him to speak our language (English)
- How to ask Mr. Compiler to add two numbers



Adding two numbers

8



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello
a is a variable.



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.

$a = 5$.



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.

a = 5.

b = 4.



Adding two numbers

8

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.

a = 5.

b = 4.

Please add them.



Adding two numbers

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HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.

a = 5.

b = 4.

Please add them.

Goodbye



Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

b is another variable.

a = 5.

b = 4.

Please add them.

Goodbye



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HOW WE MUST SPEAK TO MR. COMPILER

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a is a variable.

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a = 5.

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Please add them.

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){
```

HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

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a = 5.

b = 4.

Please add them.

Goodbye



Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
int a;
```

HOW WE USUALLY SPEAK TO A HUMAN

Hello
a is a variable.
b is another variable.
a = 5.
b = 4.
Please add them.
Goodbye



Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
    int a;  
    int b;
```

HOW WE USUALLY SPEAK TO A HUMAN

Hello
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b is another variable.
a = 5.
b = 4.
Please add them.
Goodbye



Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
    int a;  
    int b;  
    a = 5;
```

HOW WE USUALLY SPEAK TO A HUMAN

Hello
a is a variable.
b is another variable.
a = 5.
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Please add them.
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Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
    int a;  
    int b;  
    a = 5;  
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HOW WE USUALLY SPEAK TO A HUMAN

Hello
a is a variable.
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a = 5.
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Please add them.
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Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
    int a;  
    int b;  
    a = 5;  
    b = 4;  
    a + b;
```

HOW WE USUALLY SPEAK TO A HUMAN

Hello
a is a variable.
b is another variable.
a = 5.
b = 4.
Please add them.
Goodbye



Adding two numbers

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HOW WE MUST SPEAK TO MR. COMPILER

```
int main(){  
    int a;  
    int b;  
    a = 5;  
    b = 4;  
    a + b;  
    return 0;  
}
```

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return 0;
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return 0;
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```
}
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HOW WE USUALLY SPEAK TO A HUMAN

Hello

a is a variable.

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a = 5.

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; is like a
fullstop in C

Please add them.

Goodbye



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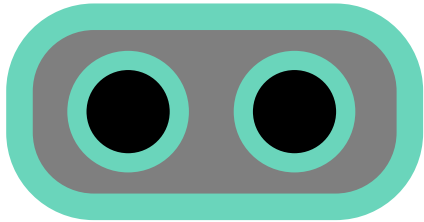
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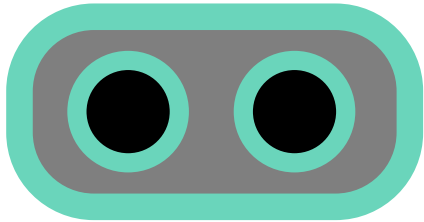
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```
a + b;
```

```
return 0;
```

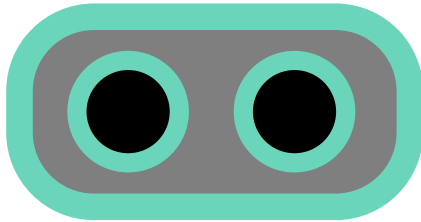
```
}
```



a



b



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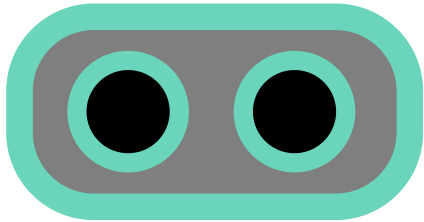
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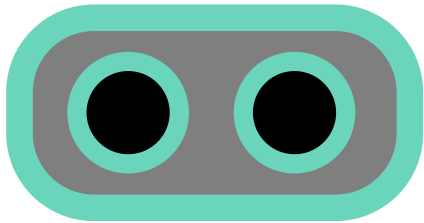
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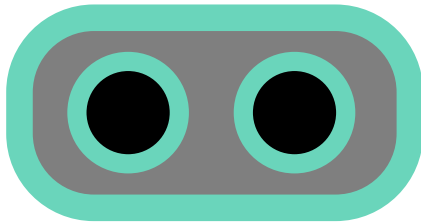
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4

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9

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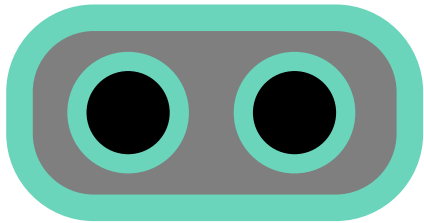
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4

a

b

9



What should I
do with this 9 😞

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Mr. C Compiler speaks to us!

38



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HOW WE USUALLY SPEAK TO A HUMAN



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HOW WE USUALLY SPEAK TO A HUMAN



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?



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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?
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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

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Please say “Hello” to me.



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HOW WE MUST SPEAK TO MR. COMPILER



HOW WE USUALLY SPEAK TO A HUMAN

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HOW WE MUST SPEAK TO MR. COMPILER

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#include<stdio.h>
```

HOW WE USUALLY SPEAK TO A HUMAN

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HOW WE MUST SPEAK TO MR. COMPILER

```
#include<stdio.h>
int main(){
printf("Hello");
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HOW WE USUALLY SPEAK TO A HUMAN

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Please say "Hello" to me.
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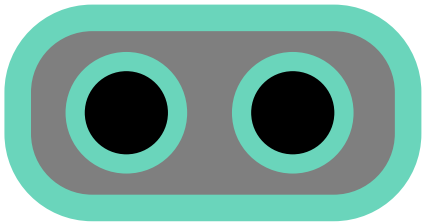
```
#include<stdio.h>
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```
int main(){
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printf("Hello");
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```
return 0;
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```
}
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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

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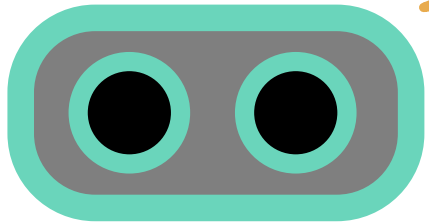
HOW WE MUST SPEAK TO MR. COMPILER

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Hello

HOW WE USUALLY SPEAK TO A HUMAN

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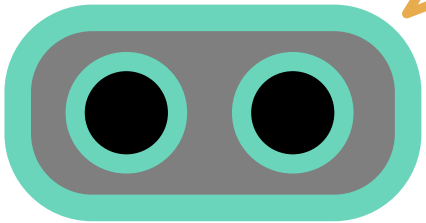
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```
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```

```
int main(){
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```
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```

```
return 0;  
}
```



I like to be told
beforehand
what all you
are going to
ask me to do!

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

Please say "Hello" to me.

Goodbye



Mr. C Compiler speaks to us!

58



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?
Hello



Mr. C Compiler speaks to us!

58

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

a is a variable.



Mr. C Compiler speaks to us!

58

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

a is a variable.

a = 5.



Mr. C Compiler speaks to us!

58

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

a is a variable.

a = 5.

Please tell me value of a.



Mr. C Compiler speaks to us!

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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

a is a variable.

a = 5.

Please tell me value of a.

Goodbye



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HOW WE MUST SPEAK TO MR. COMPILER

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

Hello

a is a variable.

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Mr. C Compiler speaks to us!

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HOW WE MUST SPEAK TO MR. COMPILER

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

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Please tell me value of a.

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Mr. C Compiler speaks to us!

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HOW WE MUST SPEAK TO MR. COMPILER

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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

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Mr. C Compiler speaks to us!

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HOW WE MUST SPEAK TO MR. COMPILER

```
#include<stdio.h>  
int main(){
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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?
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a is a variable.
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HOW WE MUST SPEAK TO MR. COMPILER

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HOW WE USUALLY SPEAK TO A HUMAN

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Mr. C Compiler speaks to us!

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HOW WE MUST SPEAK TO MR. COMPILER

```
#include<stdio.h>
int main(){
int a;
a = 5;
printf("%d",a);
```

HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?
Hello
a is a variable.
a = 5.
Please tell me value of a.
Goodbye



Mr. C Compiler speaks to us!

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int a;
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HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?
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return 0;
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Please tell me value of a.

Goodbye



Mr. C Compiler speaks to us!

58

HOW WE MUST SPEAK TO MR. COMPILER

```
#include<stdio.h>
```

```
int main(){
```

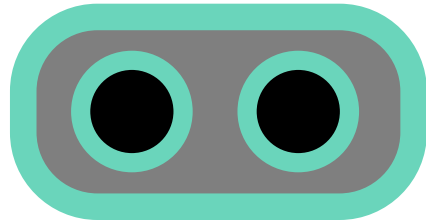
```
int a;
```

```
a = 5;
```

```
printf("%d",a);
```

```
return 0;
```

```
}
```



HOW WE USUALLY SPEAK TO A HUMAN

Can you speak English?

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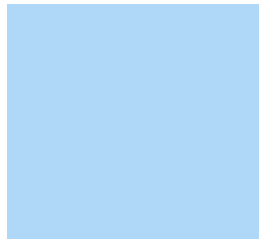
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```

```
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```

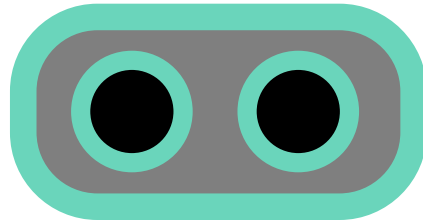
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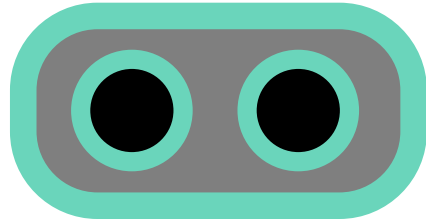
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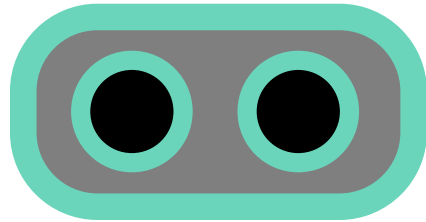
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