

C++ Primer

Jakub Marek

Revision

Headers

I/O Streams

Variable

Programming in C++ - Primer Lesson 2 - Dive In

Jakub 'Eremiell' Marek <marekj14@fel.cvut.cz>

Silicon Hill C++ Academy

2013/10/28



C++ Primer

Jakub Mare

r ...

Formatting

Headers

I/O Stream

Variable

- 1 Revision
- 2 Formatting
- 3 Headers
- 4 I/O Streams
- 5 Variables



Welcome!

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Mandala



C++ Primer

Jakub Marel

Revision

Formattin

Headers

I/O Streams

Variables



C++ Primer

Jakub Marel

Revision

ormatting

Headers

I/O Stream

Variables

Conditions



C++ Primer

Jakub Marel

Revision

Formatting

Headers

1/O Stream

Conditions

■ if



C++ Primer

Jakub Marel

Revision

Formattin

Headers

I/O Streams

Variabl

Conditions

- if
- switch/case



C++ Primer

Jakub Mare

Revision

ormattin

Headers

I/O Streams

√ariable

Conditions

- if
- switch/case
- ternary



C++ Primer

Jakub Mare

Revision

Formattin

Header

I/O Streams

Variabi

Conditions

- if
- switch/case
- ternary

Loops



C++ Primer

Jakub Mare

Revision

ormatting

⊔oodor

neaders

I/O Stream

Variabi

Conditions

- if
- switch/case
- ternary

Loops

■ while



C++ Primer

Jakub Mare

Revision

Formattin

Headers

I/O Streams

√ariabl

Conditions

- if
- switch/case
- ternary

Loops

- while
- do/while



C++ Primer

Jakub Mare

Revision

ormattin

Haadan

neaders

I/O Streams

Variab

Conditions

- if
- switch/case
- ternary

Loops

- while
- do/while
- for



C++ Primer

Jakub Marek

Formatting

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

Vania blaa

Compiler doesn't care about whitespace



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

variable

Compiler doesn't care about whitespace

spaces



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

Variabl

Compiler doesn't care about whitespace

- spaces
- tabulators



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

'

leaders

Compiler doesn't care about whitespace

- spaces
- tabulators
- newlines



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Streams

Variabl

Compiler doesn't care about whitespace

- spaces
- tabulators
- newlines

You can format your code in many ways



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

.

Compiler doesn't care about whitespace

- spaces
- tabulators
- newlines

You can format your code in many ways Which can lead to unreadable code



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

,

Compiler doesn't care about whitespace

- spaces
- tabulators
- newlines

You can format your code in many ways Which can lead to unreadable code

The International Obfuscated C Code Contest



http://ioccc.org/



C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Strooms

Maria Lilan



```
C++ Primer
```

Jakub Marel

Revisio

Formatting

Headers

I/O Stream

Variable:

```
Allman (ANSI)

int Foo(bool isBar)
{
    if (isBar)
    {
        bar();
        return 1;
    }
    else
        return 0;
}
```



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

.

```
Allman (ANSI)
int Foo(bool isBar)
    if (isBar)
        bar();
        return 1;
    else
        return 0;
Java
int Foo(bool isBar) {
    if (isBar) {
         bar();
        return 1;
      else
        return 0:
```



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

Variable

```
Allman (ANSI)
                             K&R
int Foo(bool isBar)
                             int Foo(bool isBar)
    if (isBar)
                                  if (isBar) {
                                      bar();
        bar();
                                      return 1;
        return 1;
                                      return 0:
    else
        return 0;
Java
int Foo(bool isBar) {
    if (isBar) {
         bar();
         return 1;
      else
        return 0:
```



C++ Primer

Jakub Mare

Revisio

Formatting

Haadar

I/O Stream

```
Allman (ANSI)
                             K&R
int Foo(bool isBar)
                             int Foo(bool isBar)
    if (isBar)
                                  if (isBar) {
                                      bar();
         bar();
                                      return 1;
        return 1;
                                      return 0:
    else
        return 0;
                             Stroustrup
                             int Foo(bool isBar)
Java
int Foo(bool isBar) {
                                   if (isBar) {
    if (isBar) {
                                        bar();
         bar();
                                        return 1;
         return 1;
                                   } else
                                        return 0:
      else
        return 0:
```



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

Variabl

```
Allman (ANSI)
                             K&R
                                                           Whitesmith
int Foo(bool isBar)
                             int Foo(bool isBar)
                                                           int Foo(bool isBar)
    if (isBar)
                                  if (isBar) {
                                                                if (isBar)
                                      bar();
         bar();
                                      return 1;
                                                                    bar();
        return 1:
                                                                    return 1:
                                      return 0:
    else
                                                               else
        return 0:
                                                                    return 0;
                             Stroustrup
                             int Foo(bool isBar)
Java
int Foo(bool isBar) {
                                   if (isBar) {
    if (isBar) {
                                        bar();
         bar();
                                        return 1;
         return 1;
                                   } else
                                        return 0:
      else
        return 0:
```



C++ Primer

Jakub Mare

Revisio

Formatting

Usadawa

I/O Stream

,

```
K&R
                                                           Whitesmith
Allman (ANSI)
int Foo(bool isBar)
                             int Foo(bool isBar)
                                                           int Foo(bool isBar)
    if (isBar)
                                  if (isBar) {
                                                               if (isBar)
                                      bar();
         bar();
                                      return 1;
                                                                    bar();
        return 1:
                                   else
                                                                    return 1:
                                      return 0:
    else
                                                               else
                                                                    return 0;
        return 0:
                             Stroustrup
                             int Foo(bool isBar)
                                                           Banner
Java
int Foo(bool isBar) {
                                   if (isBar) {
                                                           int Foo(bool isBar) {
    if (isBar) {
                                        bar();
                                                               if (isBar) {
         bar();
                                        return 1;
                                                                    bar();
         return 1;
                                   } else
                                                                    return 1;
     } else
                                        return 0:
        return 0:
                                                               else
                                                                    return 0;
```



C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Stroome



```
C++ Primer
```

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

.

```
GNU
int Foo(bool isBar)
{
    if (isBar)
        {
            bar();
            return 1;
        }
        else
        return 0;
}
```



return 0;

C++ Primer

Jakub Mare

GNU

Revisio

Formatting

Headers

I/O Stream



C++ Primer

Jakub Mare

Revisio

Formatting

Headers

I/O Stream

```
Variabl
```

```
GNU
                             Horstmann
int Foo(bool isBar)
                             int Foo(bool isBar)
                                if (isBar)
  if (isBar)
                                    bar();
                                    return 1;
      bar();
      return 1:
                                else
                                    return 0;
  else
    return 0;
Linux
int Foo(bool isBar)
         if (isBar)
                 bar();
                 return 1;
         } else
                 return 0;
```



C++ Primer

Formatting

```
GNU
                             Horstmann
int Foo(bool isBar)
                             int Foo(bool isBar)
                                if (isBar)
  if (isBar)
                                    bar();
                                    return 1;
      bar();
                                else
      return 1:
                                    return 0:
  else
    return 0;
                             1TBS
                             int Foo(bool isBar)
Linux
int Foo(bool isBar)
                                 if (isFoo) {
                                      bar();
         if (isBar)
                                      return 1;
                 bar();
                 return 1:
                                      return 0:
         } else
                 return 0; }
```



C++ Primer

Jakub Mare

Revisio

Formatting

Haadara

I/O Streams

.

```
GNU
                                                          Pico
                             Horstmann
int Foo(bool isBar)
                             int Foo(bool isBar)
                                                          int Foo(bool isBar)
                                if (isBar)
                                                             if (isBar)
  if (isBar)
                                   bar();
                                                                bar();
                                   return 1;
                                                                return 1; }
      bar();
                                else
      return 1:
                                                                return 0: }
                                   return 0:
  else
    return 0;
                             1TBS
                             int Foo(bool isBar)
Linux
int Foo(bool isBar)
                                 if (isFoo) {
                                      bar();
         if (isBar)
                                      return 1;
                                 } else {
                 bar();
                 return 1:
                                     return 0:
         } else
                 return 0; }
```



C++ Primer

Jakub Marel

Revisio

Formatting

i, o streams

```
Variabi
```

```
GNU
                                                          Pico
                             Horstmann
int Foo(bool isBar)
                             int Foo(bool isBar)
                                                          int Foo(bool isBar)
                                if (isBar)
                                                             if (isBar)
  if (isBar)
                                   bar();
                                                                 bar();
                                   return 1;
                                                                 return 1; }
      bar();
                                else
      return 1:
                                                                 return 0: }
                                   return 0:
                                                          Lisp
  else
    return 0:
                                                          int Foo(bool isBar) {
                             1TBS
                                                              if (isBar) {
                             int Foo(bool isBar)
                                                                   bar()
Linux
                                                                   return 1; }
int Foo(bool isBar)
                                 if (isFoo) {
                                                              else
                                      bar();
                                                                   return 0: }
         if (isBar)
                                      return 1;
                                 } else {
                 bar();
                 return 1:
                                     return 0:
         } else
                 return 0; }
```



Compact formatting

C++ Primer

Jakub Marel

Revision

Formatting

Headers

I/O Streams

Variables



Compact formatting

```
C++ Primer
```

Jakub Mare

Revisio

Formatting

Headers

I/O Streams

,

```
int Foo(bool isBar) {
    if (isBar) {
        bar();
        return 1:
    else {
        return 0:
```



Compact formatting

```
C++ Primer
```

Jakub Mare

Revisio

Formatting

Handers

I/O Stream

.

```
int Foo(bool isBar) {
    if (isBar) {
        bar();
        return 1;
    }
    else {
        return 0;
    }
}
```

Tabs take less space and are harder to mishandle.



Questions?

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

March 1.1.



C++ Primer

Jakub Marek

rtevision

Formattin

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams

Two kinds of header files:



C++ Primer

Jakub Mare

rtevision

Formatting

Headers

I/O Stream

Variabl

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files



C++ Primer

Jakub Mare

- .

Formatting

Headers

I/O Stream

Variabl

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files

Dividing declarations and definition.



C++ Primer

Jakub Mare

Revision

.

Headers

I/O Stream

Variables

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files

Dividing declarations and definition.

Cleaning up the code.



C++ Primer

Jakub Mare

Revision

. -----

Headers

I/O Stream

Variables

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files

Dividing declarations and definition.

Cleaning up the code.

Reusability.



C++ Primer

Jakub Mare

Revision

. -----

Headers

I/O Stream

Variables

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files

Dividing declarations and definition.

Cleaning up the code.

Reusability.

Every cpp got its own hpp.



C++ Primer

Jakub Mare

Revision

Formattin

Headers

I/O Stream

Two kinds of header files:

<header> System header files (libraries)

"(path/)header.hpp" Project header files

Dividing declarations and definition.

Cleaning up the code.

Reusability.

Every cpp got its own hpp.

Preprocessor variables come in all uppercase.



C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Variables



C++ Primer

Jakub Marek

Revision

Formattin

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

Revision

Formatting

Headers

1/0 6....

., 0 0

Executed before compilation

#define Defines a preprocessor variable, induces replaces.

 $\# undef \ \ Undefines \ a \ preprocessor \ variable.$



C++ Primer

Jakub Marel

Davision

Formatting

.

Headers

I/O Streams

Vania blaa

Executed before compilation

#define Defines a preprocessor variable, induces replaces.

#undef Undefines a preprocessor variable.

#if Checks condition (known to preprocessor).

#elif Checks another condition.

#else Other cases.

#endif Closes if block.



```
C++ Primer
```

Jakub Marel

Revision

Formatting

Headers

I/O Streams

.

```
Executed before compilation
```

#define Defines a preprocessor variable, induces replaces.

#undef Undefines a preprocessor variable.

#if Checks condition (known to preprocessor).

#elif Checks another condition.

#else Other cases.

#endif Closes if block.

#ifdef Checks existence of definition.

#ifndef Checks inexistence of definition.



```
C++ Primer
```

Jakub Marel

Revision

Formatting

Headers

I/O Streams

Variables

```
Executed before compilation
 #define Defines a preprocessor variable, induces replaces.
 #undef Undefines a preprocessor variable.
     #if Checks condition (known to preprocessor).
    #elif Checks another condition.
   #else Other cases.
  #endif Closes if block.
  #ifdef Checks existence of definition.
 #ifndef Checks inexistence of definition.
#include Includes another file (usually a header).
```



```
C++ Primer
```

Headers

```
Executed before compilation
 #define Defines a preprocessor variable, induces replaces.
 #undef Undefines a preprocessor variable.
     #if Checks condition (known to preprocessor).
    #elif Checks another condition.
   #else Other cases.
  #endif Closes if block.
  #ifdef Checks existence of definition.
 #ifndef Checks inexistence of definition.
#include Includes another file (usually a header).
   #line Changes number of line and name of file (for compiler only).
  #error Prints out error and ends compilation.
#pragma Sets various compiler options.
```



Header shield

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Variables

Header shield

```
C++ Primer
Headers
```

```
#ifndef HEADER HPP
#define HEADER HPP
#include <header1>
#include <header2>
#include "header3.hpp"
class c {
int func1(int);
double func2(char);
#endif
```



Questions?

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

.,



C++ Primer

Jakub Marek

revision

Formatting

Headers

I/O Streams

.,



C++ Primer

Jakub Marel

_

Formatting

Headers

 $I/O \ Streams$

Variables

In UNIX, everything is a file.



C++ Primer

Jakub Marel

_ .

Formatting

Headers

 $I/O \ \mathsf{Streams}$

Variables

In UNIX, everything is a file. Devices are files too!



C++ Primer

Jakub Mare

rtevision

Formatting

Headers

I/O Streams

Variable

In UNIX, everything is a file.

Devices are files too!

C++ communicates using streams.



C++ Primer

Jakub Mare

IVENIZION

Formattin

Headers

I/O Streams

Mandalda.

In UNIX, everything is a file.

Devices are files too!

C++ communicates using streams.

■ Keyboard is standard input stream, cin &0



C++ Primer

Jakub Mare

IVENIZION

Formattin

Headers

I/O Streams

√ariabl∈

In UNIX, everything is a file.

Devices are files too!

C++ communicates using streams.

- Keyboard is standard input stream, cin &0
- Terminal is standard output stream, cout &1



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Streams

In UNIX, everything is a file.

Devices are files too!

C++ communicates using streams.

- Keyboard is standard input stream, cin &0
- Terminal is standard output stream, cout &1
- Terminal is also standard error stream, cerr &2



C++ Primer

Jakub Marel

-

Formatting

Headers

 $I/O\ Streams$

Variables



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams

cin is an instance of istream from iostream library.



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams

cin is an instance of istream from iostream library. operator» Pushes data from stream to target variable.



C++ Primer

I/O Streams

cin is an instance of istream from iostream library. operator» Pushes data from stream to target variable. fail() Checks for error in stream.



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams
Variables

cin is an instance of istream from iostream library.

operator» Pushes data from stream to target variable.

fail() Checks for error in stream.

get() Gets a character (or more) from stream.



C++ Primer

I/O Streams

cin is an instance of istream from iostream library.

operator» Pushes data from stream to target variable.

fail() Checks for error in stream.

get() Gets a character (or more) from stream.

getline() Gets a line from stream.



C++ Primer

Jakub Mare

Formattin

Handers

I/O Streams

cin is an instance of istream from iostream library.

operator» Pushes data from stream to target variable.

fail() Checks for error in stream.

get() Gets a character (or more) from stream.

getline() Gets a line from stream.

eof() Checks if the stream is open.



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams

I/O Streams Variables cin is an instance of istream from iostream library.

operator» Pushes data from stream to target variable.

fail() Checks for error in stream.

get() Gets a character (or more) from stream.

getline() Gets a line from stream.

eof() Checks if the stream is open.

wcin Wide stream for Unicode.



Standard output stream

C++ Primer

Jakub Marel

- ...

Formatting

Headers

 $I/O \ Streams$

Variables



C++ Primer

Jakub Mare

Formattin

Headers

I/O Streams

cout is instance of ostream from iostream library.



C++ Primer

I/O Streams

cout is instance of ostream from iostream library. operator« Pushes data to stream.



C++ Primer

Jakub Mare

Earmattin

Formattin

Headers

 $I/O \ \mathsf{Streams}$

variabi

cout is instance of ostream from iostream library.

operator« Pushes data to stream.

fail() Checks for error in stream.



C++ Primer

Jakub Mare

Females

Formattin

Headers

I/O Streams

Variable

cout is instance of ostream from iostream library.

operator« Pushes data to stream.

fail() Checks for error in stream.

put() Puts a character (or more) to stream.



C++ Primer

Jakub Mare

Farmantia.

Formattin

Headers

I/O Streams

√ariables

cout is instance of ostream from iostream library.

operator« Pushes data to stream.

fail() Checks for error in stream.

put() Puts a character (or more) to stream.

write() Puts a line to stream.



C++ Primer

Jakub Mare

Formattin

i Oilliattiii

Headers

 $I/O\ Streams$

Variables

cout is instance of ostream from iostream library.

operator« Pushes data to stream.

fail() Checks for error in stream.

put() Puts a character (or more) to stream.

write() Puts a line to stream.

eof() Checks if the stream is open.



C++ Primer

Jakub Mare

Formattin

Headers

I/O Streams

I/O Streams Variables cout is instance of ostream from iostream library.

operator« Pushes data to stream.

fail() Checks for error in stream.

put() Puts a character (or more) to stream.

write() Puts a line to stream.

eof() Checks if the stream is open.

wcout Wide stream for Unicode.



C++ Primer

Jakub Marek

rtevision

Formatting

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

F-----

. -----

Headers

 $I/O\ Streams$

Variables



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Streams

Variable

Most in iomanip library

endl



C++ Primer

Jakub Mare

IXEVISION

Formatting

Headers

 $I/O\ Streams$

Variable

- endl
- dec, hex, oct



C++ Primer

Jakub Mare

rtevision

Formatting

Headers

I/O Streams

Variable

- endl
- dec, hex, oct
- fixed



C++ Primer

Jakub Mare

_ .

Formatting

Headers

I/O Streams

Variabl

- endl
- dec, hex, oct
- fixed
- setw(<int>)
- setfill(<char>)

C++ Primer

Jakub Mare

Revision

Formattin

Headers

I/O Streams

Most in iomanip library

- endl
- dec, hex, oct
- fixed
- setw(<int>)
- setfill(<char>)

std::cout « std::setiosflags(std::ios::uppercase);
std::cout.flags(std::ios::uppercase);



Questions?

C++ Primer

Jakub Marek

Revision

Formattin

Headers

I/O Streams

Vania blaa



C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

1101151011

Formatting

Headers

I/O Streams

Variables

Arrays are data structures, allowing several instances of one type under one identifier $% \left(1\right) =\left(1\right) \left(1\right)$



C++ Primer

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors http://en.wikipedia.org/wiki/Tensor



C++ Primer

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors http://en.wikipedia.org/wiki/Tensor

Usually represent some kind of linked data



C++ Primer

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors Usually represent some kind of linked data

<type><identifier>[<size>]...

http://en.wikipedia.org/wiki/Tensor



C++ Primer

Jakub Mare

Formatting

Headers

I/O Streams

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors Usually represent some kind of linked data

<type><identifier>[<size>]...

Size is fixed for the whole life of the array

http://en.wikipedia.org/wiki/Tensor



C++ Primer

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors Usually represent some kind of linked data

<type><identifier>[<size>]...

Size is fixed for the whole life of the array

Arrays are indexed from 0, ending in size - 1

http://en.wikipedia.org/wiki/Tensor



C++ Primer

Jakub Mare

Destates

Earm atting

.

Headers

I/O Streams

Variables

Arrays are data structures, allowing several instances of one type under one identifier

http://en.wikipedia.org/wiki/Tensor

Any dimensionality, just like tensors Usually represent some kind of linked data

<type><identifier>[<size>]...

Size is fixed for the whole life of the array

Arrays are indexed from 0, ending in size - 1

Multidimensional arrays can be accessed both by several indices and by just one index



C++ Primer

Jakub Mare

Formatting

Headers

I/O Stream

Variables

Arrays are data structures, allowing several instances of one type under one identifier

Any dimensionality, just like tensors http://en.wikipedia.org/wiki/Tensor

Any dimensionality, just like tensors Usually represent some kind of linked data

<type><identifier>[<size>]...

Size is fixed for the whole life of the array

Arrays are indexed from 0, ending in size - 1

Multidimensional arrays can be accessed both by several indices and by just one index

More on that later with pointers

```
C++ Primer
```

Jakub Marek

Revision

Earm atting

Headers

I/O Streams

Variables

```
Arrays are data structures, allowing several instances of one type under one
identifier
Any dimensionality, just like tensors
                                          http://en.wikipedia.org/wiki/Tensor
Usually represent some kind of linked data
<type><identifier>[<size>]...
Size is fixed for the whole life of the array
Arrays are indexed from 0, ending in size - 1
Multidimensional arrays can be accessed both by several indices and by just one
index
More on that later with pointers
#include <iostream>
int main() {
     int size = 5:
     int a[size];
     for (int i = 0; i < size; i++) {
          a[i] = i;
          std::cout << a[i] << std::endl;
     return 0:
```



C++ Primer

Jakub Marek

Revision

Formattin

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

Formattin

Headers

I/O Streams

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).



C++ Primer

Jakub Mare

_ ...

Earmattine

Formatting

Headers

I/O Streams

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).

Variables created outside any block are called global, all the other are called local (to given block).



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Streams

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).

Variables created outside any block are called global, all the other are called local (to given block).

Global variables are considered bad design, especially in OOP (C++) and you shouldn't use them.



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Streams

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).

Variables created outside any block are called global, all the other are called local (to given block).

Global variables are considered bad design, especially in OOP (C++) and you shouldn't use them.

Variables can overshadow other variables with the same name.

0



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Streams

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).

Variables created outside any block are called global, all the other are called local (to given block).

Global variables are considered bad design, especially in OOP (C++) and you shouldn't use them.

Variables can overshadow other variables with the same name.

More local one always wins.



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Stream

Variables

Variable is always visible (and exists) only in the block, in which it was created (and all subblocks).

Variables created outside any block are called global, all the other are called local (to given block).

Global variables are considered bad design, especially in OOP (C++) and you shouldn't use them.

Variables can overshadow other variables with the same name.

More local one always wins.

```
#include <iostream>
int main() {
    int a = 2;
    std::cout << a << std::endl;
    if (1) {
        int a = 3;
        std::cout << a << std::endl;
    }
    std::cout << a << std::endl;
}</pre>
```



C++ Primer

Jakub Marel

rtevision

Formatting

Headers

I/O Streams

Variables



C++ Primer

Jakub Mare

Formatting

i icaucis

I/O Streams

Variables

Just as variables can be overshadowed, functions can be overloaded.



C++ Primer

Jakub Mare

F

Formatting

Headers

I/O Streams

Variables

Just as variables can be overshadowed, functions can be overloaded.

(Don't mix it up!)



C++ Primer

Jakub Mare

Kevision

Formatting

Headers

I/O Stream

Variables

Just as variables can be overshadowed, functions can be overloaded.

(Don't mix it up!)

Overloading doesn't work on base of locality, but rather on difference of input types.



C++ Primer

Jakub Mare

Revision

Formatting

Headers

I/O Stream

Variables

Just as variables can be overshadowed, functions can be overloaded.

(Don't mix it up!)

Overloading doesn't work on base of locality, but rather on difference of input types.

```
int add(int, int);
double add(int, double);
double add(double, int);
double add(double, double);
```



Questions?

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Variables



Break!

C++ Primer

Jakub Marek

Revision

Formatting

Headers

I/O Streams

Variables