

1 main — MIR Walkthrough

Purpose: TODO: Describe why this walkthrough exists

1.1 Source Context

```
fn main() {
    let ans = fibonacci(5);

    assert!(ans == 5);
}
```

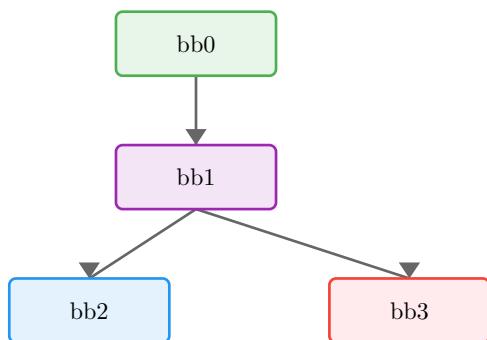
1.2 Function Overview

- **Function:** main
- **Basic blocks:** 4
- **Return type:** ()
- **Notable properties:**
 - Contains panic path
 - Has conditional branches

1.3 Locals

Local	Type	Notes
0	()	Return place
1	u32	
2	!	

1.4 Control-Flow Overview



1.5 Basic Blocks

1.5.1 bb0 — entry

Entry point of the function.

MIR	Annotation
$\rightarrow _1 = \text{fibonacci}(5) \rightarrow \text{bb1}$	Call fibonacci

1.5.2 bb1 — branch point

MIR	Annotation
$\rightarrow \text{switch}(_1) \rightarrow [5 \rightarrow \text{bb2}; \text{else} \rightarrow \text{bb3}]$	Branch on $_1$

1.5.3 bb2 — return / success

Normal return path.

MIR	Annotation
<code>→ return</code>	Return from function

1.5.4 bb3 — panic path

Panic/diverging path.

MIR	Annotation
<code>→ _2 = panic(\[16 bytes\])</code>	Call panic

1.6 Key Observations

TODO: Add bullet points summarizing what this MIR teaches

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1.7 Takeaways

TODO: One or two sentences to generalize this example

2 fibonacci — MIR Walkthrough

Purpose: TODO: Describe why this walkthrough exists

2.1 Source Context

```
fn fibonacci(n:u32) -> u32 {
    match n {
        0 => 0,
        1 => 1,
        _ => fibonacci(n - 2) + fibonacci(n - 1),
    }
}
```

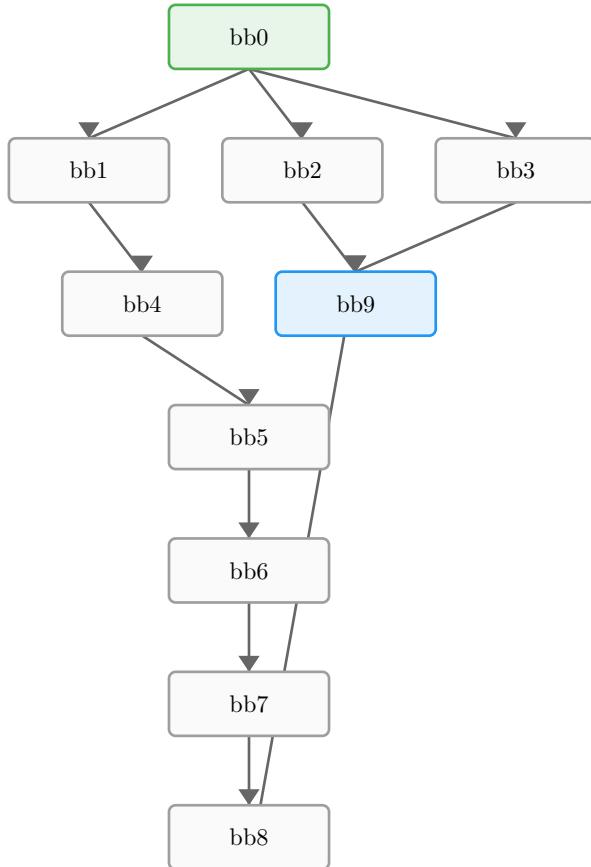
2.2 Function Overview

- **Function:** fibonacci
- **Basic blocks:** 10
- **Return type:** u32
- **Notable properties:**
 - Contains panic path
 - Uses checked arithmetic
 - Recursive
 - Contains assertions
 - Has conditional branches

2.3 Locals

Local	Type	Notes
0	u32	Return place
1	u32	
2	u32	
3	u32	
4	(u32, bool)	
5	u32	
6	u32	
7	(u32, bool)	
8	(u32, bool)	

2.4 Control-Flow Overview



2.5 Basic Blocks

2.5.1 bb0 — entry

Entry point of the function.

MIR	Annotation
<code>→ switch(_1) \[0→bb3, 1→bb2; else→bb1\]</code>	Branch on <code>_1</code>

2.5.2 bb1

MIR	Annotation
<code>_4 = checked(_1 - 2)</code>	Checked Subtract (may panic)
<code>→ assert(move _4.1 == false) → bb4</code>	Panic if move <code>_4.1</code> is true

2.5.3 bb2

MIR	Annotation
<code>_0 = 1</code>	Load constant
<code>→ goto bb9</code>	Jump to bb9

2.5.4 bb3

MIR	Annotation
<code>_0 = 0</code>	Load constant
<code>→ goto bb9</code>	Jump to bb9

2.5.5 bb4

MIR	Annotation
<code>_3 = move _4.0</code>	Move value
<code>→ _2 = fibonacci(move _3) → bb5</code>	Recursive call to fibonacci

2.5.6 bb5

MIR	Annotation
<code>_7 = checked(_1 - 1)</code>	Checked Subtract (may panic)
<code>→ assert(move _7.1 == false) → bb6</code>	Panic if move _7.1 is true

2.5.7 bb6

MIR	Annotation
<code>_6 = move _7.0</code>	Move value
<code>→ _5 = fibonacci(move _6) → bb7</code>	Recursive call to fibonacci

2.5.8 bb7

MIR	Annotation
<code>_8 = checked(_2 + _5)</code>	Checked Add (may panic)
<code>→ assert(move _8.1 == false) → bb8</code>	Panic if move _8.1 is true

2.5.9 bb8

MIR	Annotation
<code>_0 = move _8.0</code>	Move value
<code>→ goto bb9</code>	Jump to bb9

2.5.10 bb9 — return / success

Normal return path.

MIR	Annotation
<code>→ return</code>	Return from function

2.6 Key Observations

TODO: Add bullet points summarizing what this MIR teaches

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2.7 Takeaways

TODO: One or two sentences to generalize this example

