### **1. What is Rust?**

**Answer:**

Rust is a fast systems language with a strong focus on thread safety and reliability. It includes great documentation, a friendly compiler with useful error messages, and a top tooling on the stack or on the heap, which allows for data storing and determines at compile time if there isn’t a need for memory.

### **2. What are the benefits of Rust?**

**Answer:**

Rust is a fast, memory-efficient, and safe language. It has no runtime, which means that it can power performance-critical services, integrate with other languages, and run on embedded devices.

Rust also guarantees memory safety and thread safety, which enables you to eliminate many classes of bugs at compile time.

Furthermore, abstractions in Rust are free. Rust provides extensive documentation, and concurrency is supported by default in Rust.

### **3. Explain what cargo is in Rust.**

**Answer:**

Cargo is the Rust package manager to manage Rust projects. With it, you can build code, download libraries, and rebuild libraries.

### **4. What’s the connection between Rust and its reusable code?**

**Answer:**

Rust makes it possible to arrange code so that it can be reused through easy organization of modules, structures, and functions. Users can utilize them privately or publicly.

### **5. List some of the most important Rust features.**

**Answer:**

The most important features in Rust are:

**Abstraction at no cost:**Rust allows developers to build abstractions without compromising the runtime performance, clarity, or quality of code.

**Error messaging:**Rust makes error messaging extremely clear. Error messages propose misspellings and are presented with (formatting, colors).

**Threads without data races:**When two or more threads access the same memory address at the same time, a data race occurs. Rust supports threads without data races because of the ownership mechanism; only the owners of objects are transmitted to different threads via the ownership mechanism. Two threads can’t own the same variable with write access.

**Move semantics:**Rust enables move semantics that allows copy action to be replaced by a move operation when a source object is a temporary object.

**Memory safety:**Rust uses ownership (a compromise between C’s memory control and Java’s garbage collection) to ensure memory safety. Memory space is owned by variables and is temporarily borrowed by other variables. Rust offers memory safety at compile time without relying on garbage collection.

### **6. How safe is Rust compared to C and C++?**

**Answer:**

One of the main benefits of Rust in comparison to [C](https://codesubmit.io/library/c" \o "https://codesubmit.io/library/c) is the ability to write safe code. Rust doesn’t, like C does, require memory management or performing pointer arithmetic. In comparison to [C++](https://codesubmit.io/library/cplusplus" \o "https://codesubmit.io/library/cplusplus), Rust offers safety by not showing arbitrary behavior if a mistake is made.

### **7. What are the disadvantages of Rust?**

**Answer:**

The disadvantages of Rust include:

Compilation in Rust can be slow

The Rust compiler must be requested to collect with optimizations because they slow down compilation

Rust has a moderately complicated kind system

## **Advanced Rust interview questions**

What are the top advanced Rust interview questions? Here are the interview questions to ask senior Rust developers.

### **8. Explain the error handling procedures in Rust.**

**Answer:**

Error handling in Rust is categorized into three parts. These are:

Recoverable error with results: The program doesn’t stop completely if an error occurs, but instead, it can be interpreted or responded to.

Panic or not to panic: When you are unsure about calling panic or not, you can write code that panics, and the program continues as second.

Unrecoverable errors with panic: Rust’s panic macro activates if something goes wrong with the code. It shows the error message, cleans the code, and quits.

### **9. Explain how garbage collection is done in Rust.**

**Answer:**

Rust uses a static garbage collector that uses automated memory management so that memory that is no longer in use is recycled. A single reference, or variable, owns each memory segment. If the variable is out of scope and unavailable, the ownership is transferred to another variable, or the memory is released.

### **10. Can an operating system be created entirely in Rust?**

**Answer:**

Yes, an operating system can be created in Rust; in fact, Rust is used as the primary programming language in many newer operating systems. Rust is also used to create different applications, such as game engines, file systems, and virtual reality simulation engines.

### **11. Explain how to use &self, self and &mut self in the declaration method.**

**Answer:**

&self: When Read-only reference is required for the function.

self: When a value is to be consumed by the function.

&mut: When a value needs to be mutated by the function when consuming it.

### **12. Explain how to declare global variables in Rust.**

**Answer:**

Use the const keyword in Rust for compile time computed global constants. Compile time constants are limited in Rust, but primitives can be defined by const declarations.

1. ****Explain Rust?****

Rust programming language

Rust is blazingly fast systems programming language that prevents segfaults and guarantees thread safety.

****2. What are the advantages of using rust?****

It is a choice of developers. To understand advantages, let’s compare Rust with the similar programming language. However, if you want to get into complete details about Rust programming language, we are also mentioning some of the Rust Programming Language Interview Questions and Answers for all. Go through it and feel like you learnt so many things today.

****Rust Vs C++****  
Rust provides safety where C++ is not even capable enough to provide protection to its own abstraction and even the programmers to protect theirs. If any mistake is committed in C++, it shows arbitrary behaviour – technically, it means it has no meaning. Rust isolates you from that part and lets you concentrate you on the problem that you are trying to solve.

****Rust Vs Java.****  
Automatic garbage collection provides rust with an edge over Java. Java is faster but even it can’t match with the speed of C in some domains.

Note it: Rust programming language can do it easily.

****Rust Vs Python:****  
Good Design gives an edge to Rust over Python. Lambda can’t even hold any statement. In Rust, everything is defined in expressions, which means Language part composes in a much better way.

****3. How do you get a command line argument in Rust?****

The easiest way to use a command line argument in Rust is to put an iterator over the input arguments. Users can access the command line arguments by using functions such as

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std::env::args\_os or std::env::args

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****4. Does Rust include move constructors?****

No, the values of all types in Rust are moved via memcpy. It moves everything that doesn’t have a copy constructor or doesn’t implement the copy trait.

****5. Does Rust guarantee tail-call optimization?****

No, Rust doesn’t guarantee TOC (Tail Call Optimization). Not even the standard library is required to compile the rust code. In these cases, the run time is similar to that of C programming language.

****6. Could using Rust be a safer option compared to C and C++?****

The most vital advantage of using Rust over C languages is its emphasis on producing safe code. As manage memory or pointer arithmetic is necessary in C programs, Rust doesn’t require any of it beginning to end. Rust allows programmers to write unsafe code, but defaulting to its safe code.

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It’s a build system and package manager built for Rust users to manager projects in it. The Cargo system manages three things for users, building code, downloading the libraries, and rebuilding those libraries.

****8. What’s Cargo.lock in Rust?****

When a user runs cargo build command it automatically creates a file named as Cargo.lock to keep track of dependencies in the user application.

****9. What’s the relation between Rust and its reusable codes?****

Rust allows developers to arrange code in a way that fosters its reuse. By easy organization of modules available in Rust, which contain various structures, function and even other modules which users can use privately or make public according to them.

****10. What is “cargo new” purposed for?****

The cargo new command is used to create a new project in Rust. Rust users can use below syntax create a sample project using Cargo.

****$ cargo new project\_name –bin****

****11. Explain the rule of using &self, self and &mut self in the declaration method?****

****&self :****when Read-only reference is required to the function.

****self :****When a value is to be consumed by the function.

****&mut :****When a value needs to be mutated by the function with consuming it.

****12. Explain the significance of unwrap() everywhere function in Rust?****

This function is used to handle errors that extract the volume inside an option. It’s also extremely useful for instant prototypes with any errors.

****13. How to debug Rust programs?****

We can use gdb or lldb to debug Rust programs as like C and C++ programming.

****14. What are the Error Handling procedures in Rust?****

Rust Error Handling is categorized into three parts:

****Recoverable Error with Results**** : If an error occurs, the program doesn’t stop completely. Instead, it can easily be interpreted or responded.  
****Unrecoverable Errors with Panic**** : If something wrong goes with the code, Rust’s panic macro comes into action, shows the error message, clean the error and then quit.  
****Panic or Not to Panic**** : When you are dicey about calling panic or not, write the code that panics and the process will continue as 2nd.

****15. Is it possible to write a complete operating system in Rust?****

Yes, it’s possible to write a complete operating system in Rust. Even few of latest released operating system in recent days have used Rust as their primary programming language.

****16. How to express platform-specific behaviour in Rust?****

The following attributes can be used to express platform-specific behaviour in Rust.

* target\_os
* target\_family
* target\_endian
* And so on

****17. Is it possible to cross-compile in Rust?****

Yes, it is possible to have cross-compilation in Rust but certain coding is required to do the cross compilation.

****18. Explain the significance of deref coercion and its functioning?****

It is handy coercion that that is used for automatically converting into the reference to the content from the reference to the pointer.

Some examples of deref coercion are:

* ü &Box to &T
* &String to &str
* ü &Vec to &[T]
* ü &Arc to &T
* ü &Rc to &TW

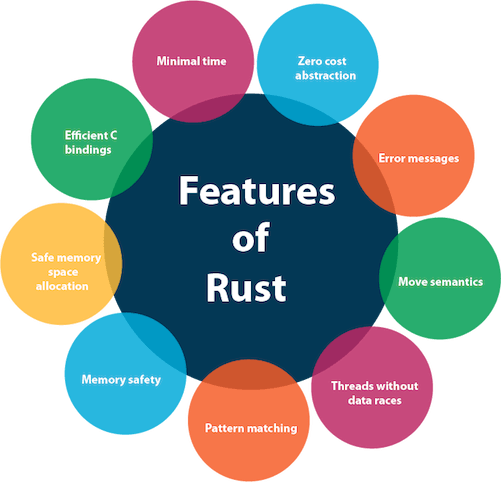
****19. When the first version of Rust was released?****

The first version of Rust was released in the year 2010.

****20. Rust syntax is similar to which programming Language?****

Rust is syntactically similar to C++.

****21. List some features of Rust?****

Features of Rust

Rust Programming Language comes with following features Sets.

* zero-cost abstractions
* move semantics
* guaranteed memory safety
* threads without data races
* trait-based generics
* pattern matching
* type inference
* minimal runtime
* efficient C bindings

****22. Who uses Rust?****

Below is list of some reputed companies who use Rust.You can find the complete list from Friends of Rust.

* 360dialog
* OneSignal
* Coursera
* Atlassian
* Braintree
* npm, Inc
* Mozilla
* Academia.edu
* Xero

****23. List the Platforms supported by Rust Programming Language?****

Linux, Mac, and Windows, on the x86 and x86-64 CPU architecture, are some major platforms supported by Rust Programming Language. For the complete list please visit (https://forge.rust-lang.org/platform-support.html).

****24. List steps to install Rust?****

On Linux and macOS simply open the terminal and run following commands  
$ curl https://sh.rustup.rs -sSf | sh  
Above command will download a script, and start the installation process. If everything was good and no error occurred you will see below success message.  
Rust is installed now. Great!  
If you are on Windows. Installing Rust is very easy just download and run rustup-init.exe File.

****25. How to get installed the version of Rust?****

rustc –version command is used to get installed version of Rust.

****26. How to write and run a Rust Program?****

Step to create and run a Rust Program  
create a file name main.rs and add following code in it.

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fn main() {

println!("Hello, Rust!");

}

On Linux or macOS to run open terminal run below command

$ rustc main.rs

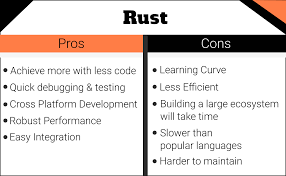
$ ./main

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****27. What Is That Cargo.lock?****

When we run cargo build command it creates a new file called Cargo.lock.Cargo uses the Cargo.lock file to keep track of dependencies in your application.

****28. What Are The Disadvantages of Rust?****

Disadvantages of Rust

****Answer :****

* Rust compilation seems slow
* Rust has a moderately-complex type system
* The Rust compiler does not compile with optimizations unless asked to, as optimizations slow down compilation and are usually undesirable during development.
* ü Rust use of LLVM for code generation

****29. Does Rust Do Tail-call Optimization?****

****Answer :****

Not, Rust code can be compiled without the standard library; In that case the runtime is roughly equivalent to C programming.

****30. What String Type Should You Use?****

****Answer :****

The string types –

* Slice type
* str – UTF-8
* OsStr – OS-compatible
* CStr – C-compatible
* Owned type
* String – UTF-8
* OsString – OS-compatible
* CString – C-compatible

****31. What Are The Differences Between The Two Different String Types?****

****Answer :****

* The “String” is an owned buffer of UTF-8 bytes allocated on the heap.
* The “Strings” are Mutable and it can be modified.
* The “&str” is a primitive type and it is implemented by the Rust language while String is implemented in the standard library.

****32. How Do I Read A File Into A String?****

****Answer :****

By using the read\_to\_string() method, which is defined on the Read trait in std::io.

****33. What Are The Rules For Using Self, & Self, Or & Mut Self In A Method Declaration?****

****Answer :****

* The “self” is use, when a function needs to consume the value.
* The “& self” is use, when a function only needs a read-only reference to the value.
* The “& mut self” is use, when a function needs to mutate the value without consuming it.

****34. How Do I Do Asynchronous Input/output In Rust?****

****Answer :****

There are several libraries providing asynchronous input/output in Rust i.e.

* mio
* tokio
* mioco
* coio-rs
* rotor
* And so on

****35. What Is The Deal With Unwrap() Everywhere?****

The unwrap() function is use to handle errors that extracts the value inside an Option, if no value is present and It is also useful for quick prototypes where you don’t want to handle an error yet.

****36. Does Rust Guarantee A Specific Data Layout?****

Not by default, Most of the general case, the enum and struct layouts are undefined.

****37. How Do I Write An Opengl App In Rust?****

The glium is a library for OpenGL programming in Rust and GLFW is also a solid option.

****38. How Can I Write A Gui Application In Rust?****

There are different ways to write GUI applications in Rust.

The List of –

* Cocoa
* GTK
* gyscos
* ImGui
* IUP and so on

****39. How Do I Cross-compile In Rust?****

It is possible but need a bit of work to set up.

****40. What Is The Relationship Between A Module And A Crate?****

****Answer :****

****Module –****A module is a unit of code organization inside a crate.

****Crate –****A Crate is a compilation unit and it contains an implicit and un-named top-level module.

****41. What string type should you use with Rust?****

By far, quite a number of string types are available to be used with Rust, choosing one from these, CStr, str, Slice, CString, OsString, OsStr and Owned type, would be more preferable.

****42. Could using Rust be a safer option compared to C and C++?****

The most vital advantage of using Rust over C languages is its emphasis on producing safe code. As manage memory or pointer arithmetic is necessary in C programs, Rust doesn’t require any of it beginning to end. Rust allows programmers to write unsafe code, but defaulting to its safe code.

****43. How does a user asynchronous input/output in Rust?****

There are several libraries available providing Rust asynchronous input/output such as tokio, mio, mioco, rotor and coio-rs.

****44. How does a user read file input efficiently in Rust?****

The following function can be used to read file input efficiency in Rust.

* read()
* read\_to\_end()
* bytes()
* chars()
* take()

****45. How do I get command line arguments in Rust?****

The easiest way is to use Args that provides an iterator over the input arguments.

****46. Is Rust object oriented?****

It is multi paradigm and most of the things can do in Rust but not everything. So, Rust is not object-oriented.

****47. Does Rust have a Run-time?****

Not! Rust code can be compiled without the standard library; In that case the runtime is roughly equivalent to C programming.

****48. How do I do global variables in Rust?****

In the Rust, you can globals declarations using const for compile time computed global constants.  
Rust currently has limited support for compile time constants and we can define primitives using const declarations.

****49. Can I write an operating system in Rust?****

Yes! You can do.

****50. How do I cross-compile in Rust?****

It is possible but need a bit of work to set up.

[1. What are the advantages of using rust?](https://www.bestinterviewquestion.com/question/what-are-the-advantages-of-using-rust-dkjdo1956)

#### **Answer**

It is a choice of developers. To understand advantages, let’s compare Rust with the similar programming language. However, if you want to get into complete details about Rust programming language, we are also mentioning some of the Rust Programming Language Interview Questions and Answers for all. Go through it and feel like you learnt so many things today.

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##### **Rust Vs Java.**

Automatic garbage collection provides rust with an edge over Java. Java is faster but even it can’t match with the speed of C in some domains.

**Note it**: Rust programming language can do it easily.

##### **Rust Vs Python:**

Good Design gives an edge to Rust over Python. Lambda can’t even hold any statement. In Rust, everything is defined in expressions, which means Language part composes in a much better way.

Is this helpful?  Yes  No

 7  7

[2. How is Rust’s Garbage Collection?](https://www.bestinterviewquestion.com/question/how-is-rust-s-garbage-collection-hbas51957)

#### **Answer**

Rust uses a static garbage collector. It works on the principle of automatic memory management which means it automatically recycles the memory that will not be used again.

Is this helpful?  Yes  No

 4  17

[3. How do you get a command line argument in Rust?](https://www.bestinterviewquestion.com/question/how-do-you-get-a-command-line-argument-in-rust-urmxe1958)

#### **Answer**

The easiest way to use a command line argument in Rust is to put an iterator over the input arguments. Users can access the command line arguments by using functions such as  
std::env::args\_os or std::env::args

Is this helpful?  Yes  No

 3  3

[4. Could you describe some crucial features of Rust?](https://www.bestinterviewquestion.com/question/could-you-describe-some-crucial-features-of-rust-giljy1960)

#### **Answer**

Move semantics, minimal runtime, efficient C bindings, trait-based generics, zero cost abstractions, pattern matching, type interface and zero cost abstractions.

Is this helpful?  Yes  No

 3  1

[5. Does Rust guarantee tail-call optimization?](https://www.bestinterviewquestion.com/question/does-rust-guarantee-tail-call-optimization-wsq2f1962)

#### **Answer**

No, Rust doesn’t guarantee TOC (Tail Call Optimization). Not even the standard library is required to compile the rust code. In these cases, the run time is similar to that of C programming language.

Is this helpful?  Yes  No

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[6. Does Rust include move constructors?](https://www.bestinterviewquestion.com/question/does-rust-include-move-constructors-5xfh21963)

#### **Answer**

No, the values of all types in Rust are moved via memcpy. It moves everything that doesn’t have a copy constructor or doesn’t implement the copy trait.

Is this helpful?  Yes  No

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[7. How to write and run a Rust program?](https://www.bestinterviewquestion.com/question/how-to-write-and-run-a-rust-program-ce6yr1964)

#### **Answer**

**Create a file name main.rs and the below-given code in it.**  
fn main() {  
    println!("Hello, Rust!");  
}  
  
**For macOS and Linux to run open terminal, put below command**  
$ rustc main.rs  
$ ./main

Is this helpful?  Yes  No

 2  2

[8. What is Cargo in Rust?](https://www.bestinterviewquestion.com/question/what-is-cargo-in-rust-n7zfm1965)

#### **Answer**

It's a build system and package manager built for Rust users to manager projects in it. The Cargo system manages three things for users, building code, downloading the libraries, and rebuilding those libraries.

Is this helpful?  Yes  No

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[9. What’s Cargo.lock in Rust?](https://www.bestinterviewquestion.com/question/what-s-cargo-lock-in-rust-flcgr1966)

#### **Answer**

When a user runs cargo build command it automatically creates a file named as Cargo.lock to keep track of dependencies in the user application.

Is this helpful?  Yes  No

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[10. What string type should you use with Rust?](https://www.bestinterviewquestion.com/question/what-string-type-should-you-use-with-rust-yja4u1967)

#### **Answer**

By far, quite a number of string types are available to be used with Rust, choosing one from these, **CStr, str, Slice, CString, OsString, OsStr and Owned type**, would be more preferable.

Is this helpful?  Yes  No

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[11. Could using Rust be a safer option compared to C and C++?](https://www.bestinterviewquestion.com/question/could-using-rust-be-a-safer-option-compared-to-c-and-c-wcpft1968)

#### **Answer**

The most vital advantage of using Rust over C languages is its emphasis on producing safe code. As manage memory or pointer arithmetic is necessary in C programs, Rust doesn’t require any of it beginning to end. Rust allows programmers to write unsafe code, but defaulting to its safe code.

Is this helpful?  Yes  No

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[12. How do we read a file into a string?](https://www.bestinterviewquestion.com/question/how-do-we-read-a-file-into-a-string-don8j1969)

#### **Answer**

We have to use read\_to\_string() method, which defines the on the Read trait in std::io

Is this helpful?  Yes  No

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[13. How does a user asynchronous input/output in Rust?](https://www.bestinterviewquestion.com/question/how-does-a-user-asynchronous-input-output-in-rust-ocbxw1970)

#### **Answer**

There are several libraries available providing Rust asynchronous input/output such as tokio, mio, mioco, rotor and coio-rs.

Is this helpful?  Yes  No

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[14. What’s the relation between Rust and its reusable codes?](https://www.bestinterviewquestion.com/question/what-s-the-relation-between-rust-and-its-reusable-codes-cnzrl1971)

#### **Answer**

Rust allows developers to arrange code in a way that fosters its reuse. By easy organization of modules available in Rust, which contain various structures, function and even other modules which users can use privately or make public according to their

Is this helpful?  Yes  No

 1  1

[15. What is “cargo new” purposed for?](https://www.bestinterviewquestion.com/question/what-is-cargo-new-purposed-for-tpgaw1972)

#### **Answer**

The cargo new command is used to create a new project in Rust. Rust users can use below syntax create a sample project using Cargo.

**$ cargo new project\_name –bin**

Is this helpful?  Yes  No

 1  1

[16. How does a user read file input efficiently in Rust?](https://www.bestinterviewquestion.com/question/how-does-a-user-read-file-input-efficiently-in-rust-lvz441973)

#### **Answer**

**The following function can be used to read file input efficiency in Rust.**

* read()
* read\_to\_end()
* bytes()
* chars()
* take()

Is this helpful?  Yes  No

 2  1

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#### **Answer**

**&self** : when Read-only reference is required to the function.

**self**: When a value is to be consumed by the function.

**&mut** : When a value needs to be mutated by the function with consuming it.

Is this helpful?  Yes  No

 2  0

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#### **Answer**

This function is used to handle errors that extract the volume inside an option. It’s also extremely useful for instant prototypes with any errors.

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#### **Answer**

We can use gdb or lldb to debug Rust programs as like C and C++ programming.

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[20. What are the Error Handling procedures in Rust?](https://www.bestinterviewquestion.com/question/what-are-the-error-handling-procedures-in-rust-yp2731977)

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**Rust Error Handling is categorized into three parts:**

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* **Panic or Not to Panic** : When you are dicey about calling panic or not, write the code that panics and the process will continue as 2nd.

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#### **Answer**

Yes, it’s possible to write a complete operating system in Rust. Even few of latest released operating system in recent days have used Rust as their primary programming language.

Is this helpful?  Yes  No

 2  0

[22. How to express platform-specific behaviour in Rust?](https://www.bestinterviewquestion.com/question/how-to-express-platform-specific-behaviour-in-rust-fw4ch1979)

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**The following attributes can be used to express platform-specific behaviour in Rust.**

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* And so on

Is this helpful?  Yes  No

 1  0

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Yes, it is possible to have cross-compilation in Rust but certain coding is required to do the cross compilation.

Is this helpful?  Yes  No

 1  0

[24. Explain the significance of deref coercion and its functioning.](https://www.bestinterviewquestion.com/question/explain-the-significance-of-deref-coercion-and-its-functioning-we2tq1981)

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* ü &Rc to &TW
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* [Career Advice](https://content.techgig.com/Career-Advice)
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# **8 Frequently asked Rust programming job interview questions**

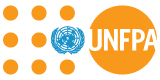
CAREER ADVICE



***​Many people want to make a career as a Rust programmer. Here are some of the most frequently asked questions in Rust programming interview that will help you nail yours.***

806 Views27 Mar 2022, 02:43 AM  
[Japsimran Kaur](https://content.techgig.com/author_articles_all.cms?query="Japsimran Kaur"&author="Japsimran Kaur")

[Rust programming](https://content.techgig.com/why-aws-is-adopting-rust-programming-language-for-product-development/articleshow/89772153.cms" \t "https://content.techgig.com/career-advice/8-frequently-asked-rust-programming-job-interview-questions/articleshow/_blank) language is an open-source, general purpose programming language that was designed for safety and performance. The syntax of Rust programming language is similar to that of C++.  
  
Many people want to make a career as a Rust programmer. But for that, they should be interview-ready, with ample knowledge of the programming language that will help them crack the interview.  
  
Here are some of the most frequently asked [questions](https://content.techgig.com/top-c-programming-job-interview-questions-to-prepare-for-in-2022/articleshow/90134808.cms" \t "https://content.techgig.com/career-advice/8-frequently-asked-rust-programming-job-interview-questions/articleshow/_blank) in Rust programming interview:



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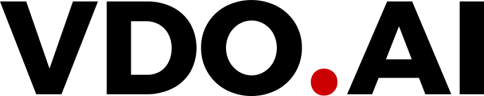
**1. What is Rust?**  
Rust is a lightning-fast systems programming language that guards against errors and ensures thread safety.  
  
**2. Do move constructors exist in Rust?**  
No, in Rust, all kinds' values are moved via memcpy.  
  
**3. What are the benefits of Rust?**

* Abstractions in Rust are free.
* Concurrency is supported by default in Rust.
* Rust provides a sense of belonging and security.
* Rust comes with extensive and amazing documentation.
* Rust is gaining popularity.

**4. Is it possible that Rust is a safer alternative to C and C++?**  
The most significant advantage of Rust over C is its focus on writing safe code. While managing memory and performing pointer arithmetic are required in C applications, Rust does not. Rust gives programmers the option of writing unsafe code, although it defaults to safe code.  
  
**5. What's the connection between Rust and the reusable codes it generates?**  
Rust allows programmers to organise their code in a way that encourages reuse. By organising the numerous structures, functions, and even other modules accessible in Rust, which users can utilise privately or make public according to their preferences.  
  
**6. In Rust, what is Cargo?**  
Cargo is a build system and package manager designed specifically for Rust developers to handle their projects. For users, the Cargo system handles three tasks: creating code, downloading libraries, and rebuilding libraries.  
  
**7. What is the best way to debug Rust programmes?**  
The best way to debug rust programmes is by using gdb or lldb.  
  
**8. Is it possible to create an operating system entirely in Rust?**  
Yes, a whole operating system can be written in Rust. Even a couple of the most recently released operating systems use Rust as their primary programming language.

You are going to find those questions right here so that you may start preparing for your interview and probably have an easy time when that day comes. The following are the top 20 Rust interview questions with answers.  
  
**1. What is Rust?**  
**Answer**: Rust is a fast systems programming language that prevents segfaults and guarantees thread safety.

**2. When was the first version of Rust released?**

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**Answer**: The first version of Rust was released in the year 2010.  
  
  
**3. What is Cargo in Rust?**  
**Answer**: It’s a build system and package manager built for Rust users to manager projects in it. The Cargo system manages three things for users, building code, downloading the libraries, and rebuilding those libraries.

[](https://www.java67.com/2017/12/10-programming-languages-to-learn-in.html)

**4. Does Rust guarantee tail-call optimization?**  
**Answer**: No, Rust doesn’t guarantee TOC (Tail Call Optimization). Not even the standard library is required to compile the rust code. In these cases, the run time is similar to that of C programming language.

**5. What are the Error Handling procedures in Rust?**  
**Answer**: Rust Error Handling is categorized into three parts:

* Recoverable Error with Results: If an error occurs, the program doesn’t stop completely. Instead, it can easily be interpreted or responded.
* Unrecoverable Errors with Panic: If something wrong goes with the code, Rust’s panic macro comes into action, shows the error message, clean the error and then quit.
* Panic or Not to Panic: When you are dicey about calling panic or not, write the code that panics and the process will continue as 2nd.

**6. What are the disadvantages of Rust?**  
**Answer**:

* Rust compilation seems slow
* Rust has a moderately-complex type of system
* The Rust compiler does not compile with optimizations unless asked to, as optimizations slow down compilation and are usually undesirable during development.
* ü Rust use of LLVM for code generation

**7. What Is The Deal With Unwrap() Everywhere?**  
**Answer**: The unwrap() function is used to handle errors that extract the value inside an Option if no value is present and It is also useful for quick prototypes where you don’t want to handle an error yet.

**8. What Is The Relationship Between A Module And A Crate?**  
**Answer**:

* Module - A module is a unit of code organization inside a crate.
* Crate - A Crate is a compilation unit and it contains an implicit and un-named top-level module.

**9. What are the advantages of Rust?**  
**Answer**:

* Predictable clean-up of resources
* Lower overhead for memory management
* Essentially no runtime system
* Rust avoids the need for GC through
* Thread-safe

**10. What are the programming paradigms supported by Rust?**  
**Answer**: The programming paradigms supported by Rust are

* Concurrent computing
* Functional programming
* Generic programming
* Structured programming

**11. How do we read a file in Rust?**  
**Answer**: We can read a file in Rust by:

* Using the read\_to\_string()
* Using the lines() iterator
* Using the read\_line() function

**12. How to express platform-specific behavior in Rust?**  
**Answer**: The following attributes can be used to express platform-specific behavior in Rust.

* target\_os
* target\_family
* target\_endian

**13. Could using Rust be a safer option compared to C and C++?**  
**Answer**: The most vital advantage of using Rust over C languages is its emphasis on producing safe code. As manage memory or pointer arithmetic is necessary in C programs, Rust doesn’t require any of it from beginning to end. Rust allows programmers to write unsafe code, but defaulting to its safe code.

**14. How do you get a command line argument in Rust?**  
**Answer**: The easiest way to use a command line argument in Rust is to put an iterator over the input arguments.

**15. What’s the relation between Rust and its reusable codes?**  
**Answer**: Rust allows developers to arrange code in a way that fosters its reuse. By easy organization of modules available in Rust, which contain various structures, functions, and even other modules which users can use privately or make public according to them.

**16. Is it possible to write a complete operating system in Rust?**  
**Answer**: Yes, it’s possible to write a complete operating system in Rust. Even a few of the latest released operating systems in recent days have used Rust as their primary programming language.

**17. Is it possible to cross-compile in Rust?**  
**Answer**: Yes, it is possible to have cross-compilation in Rust but certain coding is required to do the cross-compilation.

**18. What are the examples of companies that use Rust?**  
**Answer**:

* 360dialog
* OneSignal
* Coursera
* Atlassian
* Braintree
* npm, Inc
* Mozilla
* Academia.edu
* Xero

**19. Does Rust include move instructors?**  
**Answer**: No, in Rust, all kinds' values are moved via memcpy. Everything that does not have a copy function Object() { [native code] } or does not implement the copy trait is moved.

**20. Is it possible to create an operating system entirely in Rust?**  
**Answer**: Yes, you can write a whole operating system in Rust. Rust is now employed as the primary programming language in several recently launched operating systems. Developers are using rust to create a wide range of new software applications, including game engines, operating systems, file systems, browser components, and virtual reality simulation engines.

That's all about the **common Rust Programming interview questions and answers**. I have tried to cover as many Rust concepts as possible in these 20 questions but if you think something is missing, feel free to suggest in comment. If you want us to add more questions from any particular Rust topics, do suggest in comments and I willy try to add them.

After everything has been said and you have keenly gone through the questions with answers, what now remains is for you to make sure that you remember the answers. Remembering the answers will come to your rescue on the interview day when the panel will be asking you questions.

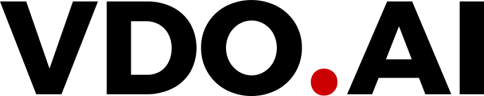
You can only be able to remember if you go through the questions with answers again and again. So make sure you do so and you will enjoy the interview. You do not need to start looking at the ceiling when asked questions, so start getting ready right now.

Read more: [https://javarevisited.blogspot.com/2022/07/rust-interview-questions-with-answers.html#ixzz7m8IoJV6B](https://javarevisited.blogspot.com/2022/07/rust-interview-questions-with-answers.html" \l "ixzz7m8IoJV6B)

### **[1) Explain Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled1)**

Rust is blazingly fast systems programming language that prevents segfaults and guarantees thread safety.



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### **[2) Rust was Designed by whom](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled2)**

Originally Rust was designed by **Graydon Hoare,**Now it managed by****Rust project developers****.

### **[3) When the first version of Rust was released](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled3)**

The first version of Rust was released in the year 2010.

### **[4) Rust syntax is similar to which programming Language](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled4)**

Rust is syntactically similar to [C++](https://www.onlineinterviewquestions.com/c-interview-questions-answers/" \t "https://www.onlineinterviewquestions.com/rust-interview-questions/_blank).

### **[5) List some features of Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled5)**

Rust Programming Language comes with following features Sets.

* zero-cost abstractions
* move semantics
* guaranteed memory safety
* threads without data races
* trait-based generics
* pattern matching
* type inference
* minimal runtime
* efficient C bindings

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### **[6) Who uses Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled6)**

Below is list of some reputed companies who use Rust.You can find the complete list from [Friends of Rust](https://www.rust-lang.org/en-US/friends.html)

* 360dialog
* OneSignal
* Coursera
* Atlassian
* Braintree
* npm, Inc
* Mozilla
* Academia.edu
* Xero

### **[7) List the Platforms supported by Rust Programming Language](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled7)**

Linux, Mac, and Windows, on the x86 and x86-64 CPU architecture, are some major platforms supported by Rust Programming Language. For the complete list please visit (https://forge.rust-lang.org/platform-support.html)

### **[8) List steps to install Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled8)**

On Linux and macOS simply open the terminal and run following commands

$ curl https://sh.rustup.rs -sSf | sh

Above command will download a script, and start the installation process. If everything was good and no error occurred you will see below success message.  
**Rust is installed now. Great!**  
If you are on Windows. Installing Rust is very easy just download and run **rustup-init.exe** File. You can download it from [here](https://win.rustup.rs/" \t "https://www.onlineinterviewquestions.com/rust-interview-questions/_blank)

### **[9) Do you remember which command is used to uninstall Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled9)**

**$ rustup self uninstall** command is used to uninstall Rust programming language.

### **[10) How to get installed the version of Rust?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled10)**

**rustc –version** command is used to get installed version of Rust.

### **[11) How to write and run a Rust Program?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled11)**

Step to create and run a Rust Program  
create a file name main.rs and add following code in it.

fn main() {

println!("Hello, Rust!");

}

On Linux or macOS to run open terminal run below command

$ rustc main.rs

$ ./main

### **[12) Explain Cargo?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled12)**

**Cargo** is Rust’s build system and package manager, and **Rustaceans** use Cargo to manage their Rust projects.Cargo manages three things: building your code, downloading the libraries your code depends on, and building those libraries.  
Read More: https://doc.rust-lang.org/book/first-edition/getting-started.html#hello-cargo

### **[13) What Is That Cargo.lock?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled13)**

When we run cargo build command it creates a new file called Cargo.lock.Cargo uses the Cargo.lock file to keep track of dependencies in your application.

### **[14) What cargo new command do?](https://www.onlineinterviewquestions.com/rust-interview-questions/" \l "collapseUnfiled14)**

**cargo new** creates a new project with Cargo. Below is the syntax to create a sample project using Rust Cargo.

$ cargo new project\_name --bin

<https://www.w3schools.io/languages/rust-tutorials/>

<https://www.tutorialspoint.com/rust/index.htm>

https://www.rust-lang.org/learn