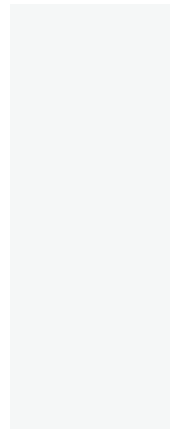Triplebyte's quiz is multiple-choice. It covers topics like basic programming, web development, basic algorithms and system design.

Triplebyte's quiz is multiple-choice. It covers topics like basic programming, web development, basic algorithms and system design. Nobody's great at everything! The quiz finds your strengths.

Try a practice question:

Why is caching used to increase read performance?

✓	It makes the first read faster.
✓	It makes the second and subsequent reads faster.
✓	It makes even-numbered reads faster.
✓	It makes odd-numbered reads faster.

You'll be able to choose front-end, mobile, or other special topics before we begin.

THAT WAS EASY :)

Question 1 out of about 30

01 min 47

What kind of SQL statement retrieves data from a table?

Select the correct answer:

✓ LOOKUP

✓ SELECT

✓ FETCH

✓ READ

✓ I don't know

Select your answer

Question 2 out of about 30

01 min 54

Why is caching used to increase read performance?

Select the correct answer:

✓ It makes the second and subsequent reads faster.

✓ It makes even-numbered reads faster.

✓ It makes odd-numbered reads faster.

✓ It makes the first read faster.

✓ I don't know

Select your answer

01 min 54 sec

Which of the following is used to maintain a user's logged-in state as they browse multiple pages on a website?

Select the correct answer:

✓ HTTP cookies

✓ HTTP keep-alive

✓ WebSockets

✓ Javascript global objects

✓ I don't know

Select your answer

A

01 min

Fill in the missing line of code:

```python
Language: Python
1  def find_max(nums):
2      max_num = float("-inf") # smaller than all other numbers
3      for num in nums:
4          if num > max_num:
5              # (Fill in the missing line here)
6      return max_num
```

Select the correct answer:

✓ num = max_num

✓ max_num += num

✓ max_num += 1

✓ max_num = num

✓ I don't know

Select your answer

01 min

What is the value of z after the following code runs?

```javascript
Language: Javascript
1  x = {'foo': 'bar'}
2  y = {'baz': x}
3  z = y['baz']['foo']
```

Select the correct answer:

✓ 'foo'

✓ undefined

✓ 'baz'

✓ 'bar'

✓ I don't know

Select your answer

A

02 min 5(

How do Webpack and Babel differ?

Select the correct answer:

- Webpack lets developers use new Javascript features, and Babel resolves module dependencies.
- Webpack and Babel fill similar roles, but Webpack offers hot module replacement whereas Babel supports inlining CSS and images.
- Webpack and Babel are competing asset pipelines. Webpack is configuration-based and more opinionated, whereas Babel more flexibility by giving explicit control over the process.
- Webpack is a module bundler, whereas Babel is a Javascript compiler.
- I don't know

Select your answer

D

01 min 54 se

What is the value of g after the following code block runs?

```javascript
Language: Javascript
1  function f(x) {
2    x *= 2;
3    return function(y) {
4      y *= x;
5      return function(z) {
6        return z * y;
7      }
8    }
9  }
10
11 let g = f(3)(4)(5);
```

Select the correct answer:

- 5
- An error occurs
- 60
- 120

B

Suppose you receive data from an API as a string containing a JSON object. How should you convert this string into a Javascript object?

Select the correct answer:

✓ eval(str)

✓ str.to_json()

✓ JSON.parse(str)

✓ JSON.stringify(str)

✓ I don't know

Select your answer

C

What is the value of g after the following code block runs?

```
Language: Javascript
1 const f = n => n <= 1 ? 1 : n * f(n - 1);
2
3 let g = f(4);
```

Select the correct answer:

✓ 60

✓ 24

✓ 1

✓ 120

✓ I don't know

Select your answer

24

What is the value of the variable eventPrice after the following code runs?

```javascript
Language: Javascript
1  let event = {
2    name: "Hot Dog and Burger Sunday",
3    financials: {
4      baseCost: "$19.99",
5      discountsAvailable: false,
6      maxCost: "$29.99"
7    },
8    subscribers: [
9      //lots of subcribers here
10   ]
11 }
12
13 let eventPrice;
14
15 const assignEvent = ({ financials: { baseCost: price } }) => eventPrice = price;
16
17 assignEvent(event);
```

Select the correct answer:

✓ undefined

✓ null

✓ "$29.99"

✓ "$19.99"

D 19

What's the expected output of the following JavaScript code?

```javascript
Language: Javascript
1  function foo() {
2
3    function bar() {
4      setTimeout(
5        () => console.log('Curly'),
6        1000);
7    }
8
9    console.log('Larry');
10   return bar;
11 }
12
13 let x = foo();
14 x();
15 console.log('Moe');
```

Select the correct answer:

✓ Larry, Moe, Curly.

✓ It won't compile.

✓ Moe, Larry, Curly.

✓ Curly, Larry, Moe.

A

Suppose we have a page with the following style and a handful of empty divs with class `pink`.
What is rendered on the page?

```html
Language: Html
1  <style>
2  .pink {
3    background-color: pink;
4    display: inline-block;
5    margin: 10px;
6    height: 100px;
7    width: 100px;
8  }
9  </style>
```

Select the correct answer:

- Pink squares stacked vertically.

- Pink squares stacked horizontally.

- An empty page. Empty inline elements have no width or height.

- Overlapping pink squares moving toward the bottom right of the page.

- I don't know

B

Why are more developers using new style sheet languages like LESS and SASS instead of CSS?

Select the correct answer:

- They compile to CSS, but provide convenient syntax for nesting, variables, and other features.

- They use an optimized subset of CSS which executes more efficiently.

- They introduce new functionality not present in CSS, like styling parent nodes when their children match a selector.

- They enable more expressive templating by allowing Javascript to execute inside styles.

- I don't know

Select your answer

A

In what order does f receive its arguments?

```javascript
Language: Javascript
1  f("foo");
2  setTimeout(function() { f("bar");}, 0);
3  f("baz");
```

Select the correct answer:

✓ foo baz bar

✓ foo baz

✓ bar foo baz

✓ foo bar baz

✓ I don't know

Select your answer

D

02 r

Which of the following strategies should we use to efficiently serve static assets to users around the globe?

Select the correct answer:

✓ Serve assets from a CDN to leverage their infrastructure.

✓ Serve assets from our app server so that we guarantee users get the most up to date version.

✓ Serve assets from our NGINX instance so that requests are authoritative but don't hit our app servers.

✓ Serve assets directly from S3 to guarantee high speed and availability.

✓ I don't know

Select your answer

Question 16 out of about 30

02 min 58 sec

When browsers don't support a new feature, developers turn to polyfills. How do these work?

Select the correct answer:

✓ A polyfill sets flags on the browser's runtime that enable experimental features that aren't on the stable channel yet.

✓ A polyfill replaces the CSS engine on a page to support new CSS3 features like animations and flexbox.

✓ A polyfill implements an API so that developers can build against a consistent interface, even on unsupported browsers.

✓ A polyfill is a wrapper around a lightweight version of the V8 runtime, which contains working implementations for HTML5 features.

✓ I don't know

Select your answer

C   api

What's wrong with the following React render function?

Language: Plain

```
1  render() {
2    if (this.props.input !== this.state.message) {
3      this.setState({message: this.props.input});
4    }
5    return (<div className='message'>{message}</div>);
6  }
```

Select the correct answer:

It is incorrect to call setState inside a render function.

className is not a valid property. Use <div class="message">.

React components should avoid using local state and instead communicate with a global store, e.g. redux.

Message is not properly interpolated. It should be {{message}}.

I don't know

Select your answer

setState

When testing your website against your API, you get the following error: Origin http://localhost:8080/ is not allowed by Access-Control-Allow-Origin. Why does this occur?

Select the correct answer:

Cross-site requests require a preflight CONNECT request to be sent ahead of time. Make sure you manually send this request before accessing the external domain.

Browsers automatically include a convenient Origin header in cross-site requests, but it can be overridden to suppress this warning.

Modern browsers have sandboxed tabs, which cannot make cross-site AJAX requests. Proxy the request through your server instead.

The same-origin policy restricts how scripts interact with resources on another origin. Make sure your API allows cross-origin requests.

I don't know

Select your answer

D   same origin policy

02 min 43 s

Fill in the missing line of code:

```javascript
Language: Javascript
1  function makeAdder(x) {
2    // ???
3  }
4
5  var add5 = makeAdder(5);
6  var add8 = makeAdder(8);
7  var add20 = makeAdder(20);
8  assert(add5(10) === 15);
9  assert(add8(6) === 14);
10 assert(add20(6) === 26);
```

Select the correct answer:

✓ return function() { return x + y };

✓ return x + y;

✓ return function(y) { return x + y; }

✓ return function() { return arguments[0] + arguments[1] };

✓ I don't know

C   with (y)

01 mi

Suppose you call React's setState function, then immediately try to console log the state you just set as in the following example. What would you expect to see?

```javascript
Language: Javascript
1  this.setState({ myVal: 'hello' });
2  console.log(this.state.myVal);
```

Select the correct answer:

✓ The previous value of myVal would be logged with high probability.

✓ 'hello'

✓ This would result in an error because the usage is incorrect.

✓ undefined.

✓ I don't know

Select your answer

02 min 57

Suppose we have a page with a button inside a div. We then execute the following Javascript. What will the console read after the button is clicked?

```javascript
Language: Javascript
1 $('div').on('click', function() {
2   console.log('div clicked');
3 });
4 $('button').click(function() {
5   console.log('button clicked');
6 });
```

Select the correct answer:

- ✓ div clicked button clicked
- ✓ div clicked
- ✓ button clicked div clicked
- ✓ button clicked

- ✓ I don't know

C?

02

Which of the following styles will horizontally center a fixed-sized element inside its parent?

Select the correct answer:

- ✓ margin: auto;
- ✔ padding: 50%;
- ✓ padding: auto;
- ✓ margin: 50%;

- ✓ I don't know

Submit

Margin auto

02

Suppose we have a function f which takes 3 arguments. What happens when f is called with only 1 argument?

Select the correct answer:

- ✓ The interpreter will throw a ValueError when the function is called.
- ✓ The interpreter will throw a ReferenceError if the function uses its unspecified arguments.
- ✓ f will be called with undefined values for the unspecified arguments.
- ✓ f will be called with null values for the unspecified arguments.

- ✓ I don't know

Select your answer

Undefined C

How will `function_logger` and `fat_arrow_logger` behave differently?

```javascript
Language: Javascript
 1  var function_logger = function() {
 2    return {
 3      log: function() {
 4        console.log(this.val);
 5      }
 6    };
 7  }
 8
 9  var fat_arrow_logger = function() {
10    return {
11      log: () => {
12        console.log(this.val);
13      }
14    };
15  }
```

Select the correct answer:

✓ Fat arrows are just semantic sugar for `function()`. There is no difference between the two.

✓ The `log` function in `function_logger` will inherit `this` from its parent scope.

✓ The `log` function in `fat_arrow_logger` will inherit `this` from its parent scope.

✓ There is no difference here, but fat arrows generally only support one statement in their bodies.

Why does the following tag appear in HTML pages?

```html
Language: Html
 1  <meta content="4sWPhTlJAmt1IcyNq1FCyivsAVhHqjiDCKRXOgOQock=" name="csrf-token" />
```

Select the correct answer:

✓ It's a user fingerprint used to track user sessions across requests.

✓ It's a signed token used to verify the user id for AJAX requests on the page.

✓ It's a cross-reference token used to correlate the response with server-side logs.

✓ It's used to prevent request forgery from external sites.

✓ I don't know

[Select your answer]

Forgery D

You are working in a git repository, and accidentally deleted a commit. Which command will help get it back?

Select the correct answer:

✓ git rebase

✓ git stash

✓ git reflog

✓ git pull

✓ I don't know

[Select your answer]

reflog

01 min 18 se

Fill in the missing line of code:

```javascript
Language: Javascript
1 function strToFloat(str) {
2    // ???
3 }
```

Select the correct answer:

✓ return str.toFloat()

✓ return parseNumber(str)

✓ return str.to_f

✔ return parseFloat(str)

✓ I don't know

Submit

02 min 34 sec

Is it generally safe to make a POST request that contains a user's password in plaintext?

Select the correct answer:

✓ No - even if the connection is over HTTPS, sensitive user data is still vulnerable to being sniffed by third parties.

✓ Yes - the body of a POST request is encrypted, so the password is not exposed.

✓ No - browsers cache POST requests, so if the user's browser is compromised their password can be recovered.

✓ Yes - if the connection is over HTTPS, the information is secure in transit.

✓ I don't know

Select your answer

Yes D

1 / 2 - ASCII deletion distance

14m55s   Submit

The deletion distance between two strings is the minimum sum of ASCII values of characters that you need to delete in the two strings in order to have the same string. The deletion distance between "cat" and "at" is 99, because you can just delete the first character of cat and the ASCII value of 'c' is 99. The deletion distance between "cat" and "bat" is 98 + 99, because you need to delete the first character of both words. Of course, the deletion distance between two strings can't be greater than the sum of their total ASCII values, because you can always just delete both of the strings entirely. Implement an efficient function to find the deletion distance between two strings. You can refer to the Wikipedia article on the algorithm for edit distance if you want to. The algorithm there is not quite the same as the algorithm required here, but it's similar.

```ruby
Language: Ruby
1 def ascii_deletion_distance(str1, str2)
2    nil
3 end
```

Test Input	Expected Result	Result	Log
"at", "cat"	99	-	≡
"boat", "got"	298	-	≡
"thought", "sloughs"	674	-	≡

Suppose you're designing a distributed worker library, and would like it to be able to queue jobs using a number of different message queuing services (RabbitMQ, Amazon Simple Queue Service, ZeroMQ). What's a good way to handle making our code work with each of these services?

Select the correct answer:

✓   We could design a base interface that defines how our library will interact with the queue service. We can create several implementations of this interface (one for RabbitMQ, one for ZeroMQ, etc). A method that runs when our library loads can look at config details, and instantiate the correct object.

✓   As long as all our functions are referentially transparent, this is not really a problem. Referential transparency means that the order in which our methods are evaluated is irrelevant, and we can just run the code for all of our queuing services. The ones that are not set up will not cause any problems.

✓   The best way is actually just to write 3 versions of the library (one for each of the queuing services). We'll end up with simpler (and faster) code in each case.

✓   We can use a global "queuing_service" variable. This will be initialized to a flag like "rabbit_mq", or "amazon_sqs". Anywhere in our code where we need to interact with the queuing service, then, we can use a switch statement on this variable to make sure that we do the right thing.

2 / 2 · Callback Throttler

Some user interactions, such as resizing and scrolling, can create a huge number of browser events in a short period of time. If listeners attached to these events take a long time to execute, the user's browser can start to slow down significantly. To mitigate this issue, we want to implement a throttle function that will detect clusters of events and reduce the number of times we call an expensive function.

Your function will accept an array representing a stream of event timestamps and return an array representing the times that a callback should have been called. If an event happens within `wait` time of the previous event, it is part of the same cluster. Your function should satisfy the following use cases:

1) Firing once on the first event in a cluster, e.g. as soon as the window starts resizing.
2) Firing once after the last event in a cluster, e.g. after the user window stops resizing.
3) Firing every `interval` milliseconds during a cluster, e.g. every 100ms while the window is resizing.

	Language: Javascript ▼	Test Input	Expected Result	Result	L
1	`function throttle(wait, onLast, onFirst, interval, timestamps) {`	20 false true 0			

Select the line of code that completes the function

```ruby
Language: Ruby
1  # function calls a method on each element
2  # of an array and stores the result in a new array
3  def map(array, method)
4    result_array = []
5
6    array.each do |element|
7      # Call the method on the object
8      value = element.send(method)
9      # MISSING LINE
10   end
11
12   return result_array
13 end
```

Select the correct answer:

- result_array.push(value)

- value.push(array)

- break

- value.send(method)

Question 7 out of about 35

You're writing a music editing app. Once a composition is done, the app encodes it (asynchronously) into a specified audio format (.mp3 or .ogg). When the encoding is complete, you'd like to update the UI in several places in the app. Which of the following approaches to this problem makes the most sense?

Select the correct answer:

- The important thing here is that we separate the UI update from the actual encoding logic. The encoding system should not know about UI. A good way to do this is a broadcast event. The encoding system can broadcast an event when a song is encoded. The UI code can listen for this event, and update the UI when it sees it.

- A spin lock is a good way to do this. The UI code can enter a spin lock, continually checking if the encoding is done. When it is, it can update the UI and exit the lock. As long as the spin lock is not on the main thread, this will work well.

- This is a perfect place for a factory method. The encoder will be the factory. When it is done with its fabrication (encoding the audio), the assembly line will take it to the UI elements, which can update the UI, before passing the composition further along the chain.

- We can simply have the encoding system take a list of UI elements as parameters. When the encoding is done, it can tell the UI elements to update themselves.

Question 12 out of about 35

Say you're building a web forum application, where users can create accounts and post messages on forums about a variety of subjects. What might your relational DB schema look like?

Select the correct answer:

- A good schema is to have a "messages" table that contains the text of every message, and a "forums" table for each forum. Because we need a many-to-many relationship between messages and forums, we'll also need an association table between the two (message-postings) associating messages to forums.

- The schema will likely have a "users" table with info on each registered user (name, password hash, etc), and a "forums" table with info on each forum (like forum name). A "messages" table can then have the text of each message, a foreign key to the users table, and a foreign key to the forums table.

- It's most flexible to use a stored procedure to pull together the data we need dynamically.

- The schema will probably feature a "posts" table with the text of every message posted, the name of the user who posted it, e.g. "John Smith", and the name of the forum to which it was posted.

- I don't know

Which of the following makes the most sense as part of scaling a SQL database to handle increased write load?

Select the correct answer:

- Adding database replicas (in a master-slave configuration) to scale horizontally

- Adding database indices on the columns most often updated

- Writing to a materialized view, rather than to the main table

- Removing little-used indices from the database and batching writes (where possible)

- I don't know

Select your answer

Imagine you're building a massively multi-player Pac Man game. You want hundreds of players to be able to play Pac Man against each other at the same time. You're going to pay prize money to the best players, so it's important that you limit their ability to cheat. How might you best build this?

Select the correct answer:

- Socket.IO is the way to go. Each client can open a web socket connection to the server, and transmit an event whenever their player moves. These events will be emitted to every other player in the game. That way every client will know where all the other players are, and can detect when they should die and remove themselves from the board

- A server needs to run a canonical copy of the game, with all players. Each client can also run a copy of their region of the game, and use this to interpolate states between server updates. Clients would send their control inputs to the server (perhaps with a time stamp, although that raises cheating issues), and receive updates for all players near them.

- None of these designs make sense

- A peer-to-peer architecture makes the most sense (the latency of a client-server version would be a problem). Each player could have a list of peers near them in the game, and send those peers their location every frame. You could have a voting system (like a blockchain) where clients vote to resolve state conflicts and agree on the final version.

- I don't know

Suppose you want to deploy a CPU-bound single-threaded app server to a machine with 16 logical CPU cores. Which design makes the most sense to maximize performance?

Select the correct answer:

- You'll want your app server to `fork()` a new process on every request. This has better socket utilization and a lower memory footprint under load vs creating a fixed number of processes up-front.

- It's rarely helpful to run multiple copies of a CPU bound app server (the global interpreter lock means they just take turns). You'll want to make sure that TCP buffers are small, and that you're using fastCGI.

- You'll want a flexibly sized pool of server processes. This pool can grow if CPU utilization is low, and shrink if it's high. Then you can use round-robin DNS to balance load between them.

- You'll want 16 copies of your app server, with a reverse proxy (like NGINX) in front to balance load and provide persistent connections and security.

- I don't know

Select your answer

In which of the following uses would a read–write lock most outperform a simple mutex?

Select the correct answer:

- To control access to a dynamic list class in a write-heavy concurrent environment.
- To control access to a database from a cluster of worker processes.
- To control access to a dynamic list class in a read-heavy concurrent environment.
- ✓ To control access to a critical section of very short duration (will be locked very briefly).
- I don't know

Submit

You're building a photo editing program. So far your program uses a single thread.
You're considering making it multi-threaded. Which of the following statements about threads is accurate?

Select the correct answer:

- Modern operating systems use a GIL (global interpreter lock). This can limit the efficacy of multi-threading.
- If your program is CPU-bound, adding threads may make it faster on multi-core processors.
- Adding multiple threads will allow your program to edit multiple photos at once. Go for it!
- Threads will slow down your application. An asynchronous design is better (but might be harder to write).
- I don't know

Select your answer