Test 2

Q1 - Q3

Easy model building

TensorFlow offers multiple levels of abstraction so you can choose the right one for your needs. Build and train models by using the high-level Keras API, which makes getting started with TensorFlow and machine learning easy.

If you need more flexibility, eager execution allows for immediate iteration and intuitive debugging. For large ML training tasks, use the Distribution Strategy API for distributed training on different hardware configurations without changing the model definition.

Robust ML production anywhere

TensorFlow has always provided a direct path to production. Whether it's on servers, edge devices, or the web, TensorFlow lets you train and deploy your model easily, no matter what language or platform you use.

Use TensorFlow Extended (TFX) if you need a full production ML pipeline. For running inference on mobile and edge devices, use TensorFlow Lite. Train and deploy models in JavaScript environments using TensorFlow.js.

Powerful experimentation for research

Build and train state-of-the-art models without sacrificing speed or performance. TensorFlow gives you the flexibility and control with features like the Keras Functional API and Model Subclassing API for creation of complex topologies. For easy prototyping and fast debugging, use eager execution.

TensorFlow also supports an ecosystem of powerful add-on libraries and models to experiment with, including Ragged Tensors, TensorFlow Probability, Tensor2Tensor and BERT.

Q1. Is the following statement True or False?

TensorFlow is a comprehensive platform for machine learning that offers in-built libraries and models only.

A True

B False

Q2. The word "one" in the passage refers to

A Level

B Tensorflow

C Model

D Keras API

Q3. Which of the following is closest in meaning to "state-of-the-art"?

A full-fledged

B cutting-edge

C deeply-rooted

D long-awaited

Q4 - Q5

Build the model

Building the neural network requires configuring the layers of the model, then compiling the model.

Set up the layers

The basic building block of a neural network is the layer. Layers extract representations from the data fed into them. Hopefully, these representations are meaningful for the problem at hand.

Most of deep learning consists of chaining together simple layers. Most layers, such as tf.keras.layers.Dense, have parameters that (i) during training.

```
model = tf.keras.Sequential([
    tf.keras.layers.Flatten(input_shape=(28, 28)),
    tf.keras.layers.Dense(128, activation='relu'),
    tf.keras.layers.Dense(10)
])
```

The first layer in this network, tf.keras.layers.Flatten, transforms the format of the images from a two-dimensional array (of 28 by 28 pixels) to a one-dimensional array (of 28 * 28 = 784 pixels). Think of this layer as unstacking rows of pixels in the image and lining them up. This layer has no parameters to learn; it only reformats the data.

After the pixels are flattened, the network consists of a sequence of two tf.keras.layers.Dense layers. These are densely connected, or fully connected, neural layers. The first Dense layer has 128 nodes (or neurons). The second (and last) layer returns a logits array with length of 10. Each node contains a score that indicates the current image belongs to one of the 10 classes.

Q4. It can be inferred that "the problem at hand" refers to

A a bug that needs to be fixed

B a commonly made mistake

C an issue that may or may not occur

D the situation being dealt with at the moment

Q5. Which of the following best completes the blank marked (i)?

A are learning

B learned

C are learned

D learn

Q6

Structure of an HTML document

The Document Object Model (DOM) is an architecture that describes the structure of a document; each document is represented by an instance of the interface Document. A document, in turn, consists of a hierarchical tree of nodes, in which a node is a fundamental record representing a single object within the document(such as an element or text node).

Nodes may be strictly organizational, providing a means for grouping other nodes together or for providing a point at which a hierarchy can be constructed; other nodes may represent visible components of a document. Each node is based on the Node interface, which provides properties for getting information about the node as well as methods for creating, deleting, and organizing nodes within the DOM.

Nodes don't have any concept of including the content that is actually displayed in the document. They're **empty vessels**. The fundamental notion of a node that can represent visual content is introduced by the Element interface. An Element object instance represents a single element in a document created using either HTML or an XML vocabulary such as SVG.

Q6. Why does the author mention "empty vessels"?

A To give an example of how a document is used

B To illustrate how nodes do not represent the content displayed in the document

C To discuss the absence of information in a document

D To criticize the inadequacy of the DOM

Q7 - Q8

Fetch API

The Fetch API provides an interface for fetching resources (including across the network). It will seem familiar to anyone who has used XMLHttpRequest, but the new API provides a more powerful and flexible feature set.

Concepts and usage

Fetch provides a generic definition of Request and Response objects (and other things involved with network requests). This will allow them to be used wherever they are needed in the future, whether it's for service workers, Cache API, and other similar things that handle or modify requests and responses, or any kind of use case that might require you to generate your responses programmatically (that is, the use of computer program or personal programming instructions).

It also defines related concepts such as CORS and the HTTP Origin header semantics, supplanting their separate definitions elsewhere.

For making a request and fetching a resource, use the fetch() method. It is implemented in multiple interfaces, specifically Window and WorkerGlobalScope. This makes it available in pretty much any context you might want to fetch resources in.

The fetch() method takes one mandatory argument, the path to the resource you want to fetch. It returns a Promise that resolves to the Response to that request — as soon as the server responds with headers — even if the server response is an HTTP error status. You can also optionally pass in an init options object as the second argument(see Request).

Q7. Which of the following statements is not true?

A The fetch() method is executed in a single interface.

B The Fetch API offers an interface to fetch resources.

C Fetch defines related concepts and replaces their separate definitions somewhere else.

D Fetch enables users to obtain a comprehensive definition of Request and Response objects.

Q8. The phrase "pretty much any" is closest in meaning to

A very few

B almost all

C small number of

D hardly any

Q9 - Q11

Storage, Memory and the Stack

The Ethereum Virtual Machine has three areas where it can store data: storage, memory and the stack.

Each account has a data area called storage, which is persistent between function calls and transactions. Storage is a key-value store that maps 256-bit words to 256-bit words. It is not possible to enumerate storage from within a contract, it is comparatively costly to read, and even more to initialize and modify storage. Because of this cost, you should minimize what you store in persistent storage to what the contract needs to run. Store data like derived calculations, caching, and aggregates outside of the contract. A contract can neither read nor write to any storage apart from its own.

The second data area is called memory, of which a contract obtains a freshly cleared instance for each message call. Memory is linear and can be addressed at byte level, but reads are limited to a width of 256 bits, while writes can be either 8 bits or 256 bits wide. Memory is expanded by a word (256-bit), when accessing (either reading or writing) a previously untouched memory word (i.e. any offset within a word). At the time of expansion, the cost in gas must be paid. Memory is more costly the larger it grows (it scales quadratically).

The EVM is not a register machine (i) a stack machine, so all computations are performed on a data area called the stack. It has a maximum size of 1024 elements and contains words of 256 bits. Access to the stack is limited to the top end in the following way: It is possible to copy one of the topmost 16 elements to the top of the stack or swap the topmost element with one of the 16 elements below it. All other operations take the topmost two (or one, or more, depending on the operation) elements from the stack and push the result onto the stack. Of course it is possible to move stack elements to storage or memory in order to get deeper access to the stack, but it is not possible to just access **arbitrary** elements deeper in the stack without first removing the top of the stack.

Q9. Translate the following statement into Korean:

All computations are performed on a data area called the stack.

Answer :

Q10. Choose the best word to complete the blank marked (i).

A of

B but

C for

D in

Q11. The word "arbitrary" is closest in meaning to

A fixed

B stable

C essential

D random

Q12 - Q13

Ajax

Ajax, which initially stood for Asynchronous JavaScript And XML, is a programming practice of building complex, dynamic webpages using a technology known as XMLHttpRequest.

Ajax allows you to update parts of the DOM of an HTML page without the need for a full page refresh. Ajax also lets you work asynchronously, meaning your code continues to run while the targeted part of your web page is trying to reload (compared to synchronously, which blocks your code (i) running until that part of your page is done reloading).

With interactive websites and modern web standards, Ajax is gradually being replaced by functions within JavaScript frameworks and the official Fetch API Standard.

Q12. Which of the following is <u>not</u> an advantage of using Ajax?

A You can make partial DOM updates without a full page refresh.

B You are able to work asynchronously.

C You can replace Ajax with functions within JavaScript frameworks.

D You can have your code running as the targeted part of the web page is reloading.

Q13. Choose the best preposition to complete the blank marked (i).

A by

B from

C in

D for

Q14 - Q15

An overview of HTTP

HTTP is a protocol for fetching resources such as HTML documents. It is the foundation of any data exchange on the Web and it is a client-server protocol, which means requests are initiated by the recipient, usually the Web browser. A complete document is reconstructed from the different sub-documents fetched, for instance, text, layout description, images, videos, scripts, and more.

Clients and servers communicate by exchanging individual messages (as opposed to a stream of data). The messages sent by the client, usually a Web browser, are called requests and the messages sent by the server as an answer are called responses.

Designed in the early 1990s, HTTP is an extensible protocol which has evolved over time. It is an application layer protocol that is sent over TCP, or over a TLS-encrypted TCP connection, though any reliable transport protocol could theoretically be used. Due to its extensibility, it is used to not only fetch hypertext documents, but also images and videos or to post content to servers, like with HTML form results. HTTP can also be used to fetch parts of documents to update Web pages (i).

Q14. Which of the following statements is <u>not</u> true?

A Requests refer to messages sent by the client.

B HTTP is used to fetch hypertext documents as well as images and videos.

C Responses are initiated by the client.

D HTTP serves as the basis of any data exchange that takes place on the Web.

Q15. Choose the correct phrase to complete the blank marked (i).

A of demand

B on demand

C for demand

D with demand

Q16 - Q17

What is JavaScript?

JavaScript is a powerful programming language that can add interactivity to a website. It was invented by Brendan Eich.

JavaScript is versatile and beginner-friendly. With more experience, you'll be able to create games, animated 2D and 3D graphics, comprehensive database-driven apps, and much more!

JavaScript itself is relatively compact, yet very flexible. Developers have written a variety of tools on top of the core JavaScript language, unlocking a vast amount of functionality with minimum effort. These include:

- Browser Application Programming Interfaces (APIs) built into web browsers, providing functionality such as dynamically creating HTML and setting CSS styles; collecting and manipulating a video stream from a user's webcam, or generating 3D graphics and audio samples.
- Third-party APIs that allow developers to incorporate functionality in sites from other content providers, such as Twitter or Facebook.
- Third-party frameworks and libraries that you can apply to HTML to **accelerate** the work of building sites and applications.

Q16. Is the following statement True or False?

JavaScript offers great extensibility and flexibility supporting a lot of features.

A True

B False

Q17. The word "accelerate" is closest in meaning to

A expand

B elevate

C expedite

D escalate

Q18 - Q19

ContributorA commented.

I think it would be nice to have somehow a tool that could visualize compiler internals.
If once ready, the tool could be used to teach about how the compiler actually works and it will also be useful for debugging compiler bugs.

The idea would be to have at first a simple Solidity/Yul editor with syntax highlighting, after that all current provided debugging information and compiler outputs should be somehow visualized. Additionally it would be great to also visualize things, that we are currently not really exporting, e.g. optimiser code transformations, whiskers template instantiations (being able to see from where exactly (in our C++ code) a parameter of a template was set) etc.

I know that all this is quite a big effort, but I would say it would be very helpful in general.
It will improve the code quality of the solidity compiler - because we need to see the compiler from a slightly different perspective. This tool will help us to communicate used algorithms and concepts, where it would also support us to investigate compiler bugs.

I created this PR to collect possible feedback on such tool in general. What is your opinion?

MaintainerB commented.

Sorry about that, but I don't think we will go for this and I don't think it makes sense to keep a PR open with this (we're trying to keep our PR count low enough to be manageable).

(i) : if anyone wants to build a UI on top of the compiler, it should interact with the compiler via the standard interfaces (like standard-json) and be developed separately from the compiler and not by us, categorically.
Any further "currently not exported" information should, if anything, become additional debug data to be consumed by arbitrary external tools.

Q18. Which of the following is true?

A MaintainerB wanted to keep this PR open for the time being.

B ContributorA created this PR to fix a bug with the UI on top of the compiler.

C MaintainerB wants to reduce the PR count if possible.

D ContributorA was not eligible for collecting feedback before.

Q19. Choose the best phrase to complete the blank marked (i).

A Put differently

B That said

C In contrast

D On a differnet note

Q20. Translate the code explanations below into English.

1) 정수 변수 "a"와 문자열 상수 "b"를 선언해 주세요. "a"에 10을, "b"에 "GeekHaus"를 할당해 주세요.

2) 변수 "a"를 1만큼 감소시키고, "a"의 값을 printNumber 함수에 인자로 전달해 주세요.

3) 조건문이 참이면, "Hello World"를 출력하세요.

4) For 반복문으로 배열을 돌고, 배열 요소의 값이 0일 경우 반복문을 빠져나와주세요.

5) 정수 인자 한 개를 받는 checkPositive 함수를 호출하세요. 이 함수는 number 매개변수가 0보다 작으면 "Negative"를 반환합니다.

Test 2 정답 및 해설

Q1 | **B**

본문의 "TensorFlow also supports an ecosystem of powerful add-on libraries and models to experiment with, including Ragged Tensors, ~"에서 확인할 수 있는 것처럼 텐서플로우는 내장된(in-built) 라이브러리 및 모델 뿐만 아니라 다양한 애드온(추가 확장)을 지원합니다.

Q2 | **A**

문장에서 one은 앞서 언급된 multiple levels 중 하나를 의미합니다.

Q3 | **B**

State-of-the-art 는 "최첨단의, 최신 기술의" 라는 뜻의 형용사입니다. 유의어로 Cutting-edge 가 있습니다.

A Full-fledged : 자격을 제대로 갖춘
C Deeply-rooted : 뿌리 깊은
D Long-awaited : 대망의, 오래 기다리던

Q4 | **D**

Problem at hand는 "당면한 문제"를 뜻합니다. 유의어로 Issue at hand 또는 Matter at hand가 있습니다.

Q5 | **C**

Learn은 동사로 "배우다", "습득하다"라는 뜻입니다. 매개 변수(Parameters)는 학습(Training)을 통해 습득되는 것이기 때문에, 수동태인 are learned가 문법적으로 옳은 표현입니다.

Q6 | **B**

Empty vessel은 "빈 용기"를 뜻합니다. 앞에 언급된 "Nodes don't have any concept of including the content that is actually displayed in the document (노드에는 문서에 실제로 표시되는 내용을 포함하는 개념이 없습니다)"라는 사실을 비유적으로 표현하며,

노드 자체는 콘텐츠를 표시하는 것이 아니라는 것을 강조했습니다.

Q7 | **A**

본문의 "It is implemented in multiple interfaces"에서 확인할 수 있듯이, fetch() method는 다수의(multiple) 인터페이스에서 구현됩니다.

Q8 | **B**

Pretty much는 "거의"라는 뜻으로, 일상 회화에서 자주 사용하는 표현입니다. 본문의 in pretty much any context는 "거의 모든(아무) 맥락에서"라는 의미로, 보기의 "almost all"이 가장 유사한 표현입니다.

Q9 |

모든 계산은 스택이라고 불리는 데이터 영역에서 수행된다.

참고: 메모리의 스택은 지역 변수(local variable)와 매개변수(parameter)가 저장되는 영역입니다.

Q10 | **B**

Not A but B 는 "A가 아닌 B"라는 뜻으로 본문에서 "EVM은 레지스터 머신이 아닌 스택머신이다"라는 의미로 사용되었습니다. 문장 뒷부분의 "so all computations are performed on a data area called the stack"에서 EVM이 stack과 관련 있다는 것을 유추할 수 있습니다.

Q11 | **D**

Arbitrary는 "임의적인", "제멋대로인"이라는 뜻의 형용사로, Random과 유사하게 사용됩니다.

A Fixed : 고정된

B Stable : 안정된

C Essential : 필수적인

Q12 | **C**

"Ajax is gradually being replaced by~"는 "Ajax는 점차 ~로 대체되고 있다"라는 뜻으로 질문에서 가리키는 장점 중 하나에 해당되지 않습니다.

Q13 | **B**

Block A from B는 "A를 B로 부터 차단하다" 라는 뜻으로 "~로부터"를 의미하는 전치사 from이 반드시 필요합니다.

Q14 | **C**

본문의 "the messages sent by the server as an answer are called responses"에 의하면, Response는 클라이언트가 아닌 서버로부터 발생합니다.

Q15 | **B**

On demand는 "요구 즉시, 요청 시"를 뜻합니다. 나머지 (A), (C), (D)는 문법적으로 옳지 않은 표현들입니다.

Q16 | **A**

본문의 "JavaScript itself is relatively compact, yet very flexible. Developers have written a variety of tools on top of the core JavaScript language, unlocking a vast amount of functionality with minimum effort"에서 자바스크립트가 높은 확장성 및 유연성을 제공하고, 다양한 기능들을 지원한다는 것을 알 수 있습니다.

Q17 | **C**

Accelerate는 Expedite의 유의어로 "가속화하다, 속도를 높이다" 라는 뜻입니다.

A Expand : 확대되다, 확대시키다

B Elevate : (정도를) 높이다, 증가시키다

D Escalate : 증가시키다, 확대되다 (시키다)

Q18 | **C**

본문의 "We're trying to keep our PR count low enough to be manageable (관리할 수 있을 만큼 PR 수를 낮게 유지하려고 합니다)"에서 정답을 유추할 수 있습니다.

Q19 | **A**

User2는 풀 리퀘스트를 닫을 계획이며, 해당 주제로 진행하려는 사람들을 위한 가이드라인을

제공하고 있습니다. Put differently는 "달리 말하면"이라는 뜻으로 가이드라인에 대한 서술을 시작하는 상황과 가장 잘 어울립니다.

B That said : 그렇긴 하지만

C In contrast : 반면에

D On a different note : 앞의 이야기와 별개로

Q20 |

1) Declare an integer variable a and string constant b. Assign 10 to a and "GeekHaus" to b.

2) Decrement the variable "a" by 1 and pass a to the printNumber function as an argument.

3) If the conditional statement evaluates to true, print "Hello World".

4) Iterate over the array via the for loop, and jump out the for loop if the value of the element is 0.

5) Call the checkPositive function accepting an integer argument. This function returns "Negative" if the number parameter is smaller than 0.

문제 출처

[Q1 - Q3] Tensorflow website, Why Tensorflow
[Q4 - Q5] Tensorflow, Tutorials, Basic classification: Classify images of clothing
[Q6] MDN, The HTML DOM API
[Q7 - Q8] MDN, Fetch API
[Q9 - Q11] Solidity docs, Introduction to Smart Contracts
[Q12 - Q13] MDN, Ajax
[Q14 - Q15] MDN, An overview of HTTP
[Q16 - Q17] MDN, JavaScript Basics
[Q18 - Q19] Github, ethereum/solidity, Pull request #13393

번역 : www.geekhaus.club/translation