

Tutorial para criação e uso de Instâncias EC2 no Laboratório AWS Educate da Disciplina de Engenharia de Software

Este tutorial se divide em três etapas:

- I. Acesso inicial ao classroom da disciplina no AWS Educate
- II. Criação de instâncias no Laboratório AWS Educate.
- III. Conexão com a instância do EC2

I. Acesso inicial ao Classroom da disciplina no AWS Educate

1. Aceitar o convite enviado por email

Your AWS Educate Application Caixa de entrada x

AWS Educate Support <support@awseducate.com>
para eu ▾

 inglês ▾ > português ▾ [Traduzir mensagem](#)

Hi -

Your educator has invited you to join AWS Educate and access a "Classroom" for your course work. A "Classroom"

Classrooms are managed by a third-party content and service provider, Vocareum ("Third-Party Content Provider"), Educate Terms and Conditions.

If you accept the Classroom invitation, the Third-Party Content Provider may allow your educator to view your Class and your access activity.

Click [here](#) to complete the AWS Educate application process, accept your Classroom invitation and receive access

If you do not wish to proceed, ignore this email.

Thank you,

AWS Educate

 Responder

 Encaminhar

2. Clicar no convite e preencher o registro

Step 2/3: Tell us about yourself

University of Sao Paulo

Start typing the name of your school and select from the list. If you don't see your school, enter the full name, example: Harvard University

Country

First Name Last Name

grafana.pcs.lot@gmail.com

Please provide a valid, current email issued by your institution. Example: your_name@your_school.edu

Graduation Month Graduation Year

Birth Month Birth Year Promo Code (optional)

[Frequently Asked Questions](#)

Please click the box below to help assure that a person and not an automated program is submitting this application. If a set of letters is displayed enter them on the line. If you have any difficulty with the letters, you can click the reload icon to get a new set of letters, or click the headphones to hear audio of what to enter.

✓ Não sou um robô 

Please note that any personal information you provide will be treated in accordance with the [AWS Educate Terms and Conditions](#) and [AWS Privacy Notice](#)

NEXT 

3. Aceitar os termos do serviço

aws educate
Apply to join AWS Educate

Terms & Conditions

version of this Agreement will control if there is any conflict.

10.0. CONTRACTING ENTITY
Notwithstanding anything to the contrary in these Terms:

10.1 India Customers. If you are located in India, your contracting party will be Amazon Internet Services Private Limited ("AISPL"), and this Agreement is an agreement between you and AISPL, located at Ground Floor, EROS Plaza, Eros Corporate Centre, Nehru place, New Delhi, India - 110019. If you are located in India, all references to "AWS," "we," or "us" in this Agreement shall be deemed as referring to AISPL. Additionally, if you are located in India, this Agreement shall be deemed to differ from the above provisions as follows:

(a) The Amazon.com Privacy Notice defined in Section 4.1 shall be deemed to refer to the Amazon.in Privacy Notice located at <http://www.amazon.in/gp/help/customer/display.html?nodeId=200534380>; and

(b) Under Section 9.5, any notice by you to AISPL under this Agreement must be made by registered or certified mail to Amazon Internet Services Private Limited, Ground Floor, Eros Corporate Towers, Nehru Place, New Delhi - 110 019, India (not to Amazon Web Services, Inc).

You must scroll through the entire Terms and Conditions before accepting or declining.

I Agree I Decline

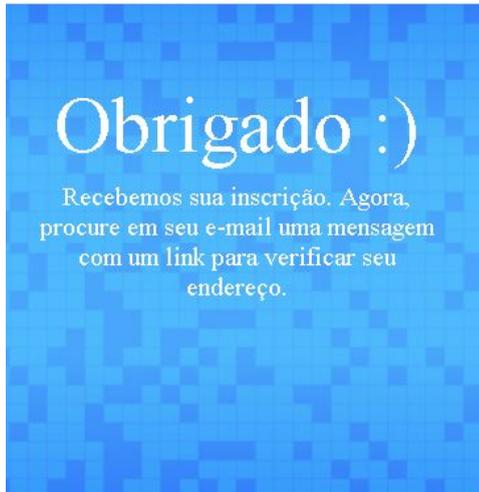
SUBMIT 

Please note that any personal information you provide will be treated in accordance with the [AWS Educate Terms and Conditions](#) and [AWS Privacy Notice](#)

4. Ir para o link enviado por email



Inscreva-se para ingressar na AWS Educate



5. Abrir o email

Email Verification – AWS Educate Application Caixa de entrada x

AWS Educate Support <support@awseducate.com>
para eu ▾

🗣️ inglês ▾ > português ▾ Traduzir mensagem

Hello Grafana,

Thank you for submitting your AWS Educate application!

In order for your AWS Educate application to be processed, we need to verify your email address. Please use t

<https://www.awseducate.com/ConfirmEmail?ref=eede1b259c006a96d0e11ff96d41016d>

Thank you,

The AWS Educate Team

← Responder

➡ Encaminhar

6. Clicar no link de confirmação e esperar



Inscreva-se para ingressar na AWS Educate

Recebemos sua inscrição e estamos em processo de análise no momento. Você receberá um e-mail quando a análise for concluída. Obrigado!

7. Após uns 15 minutos, deve chegar um email e será necessário clicar no email para ir ao Portal

AWS Educate Application Approved Caixa de entrada x

AWS Educate Support <support@awseducate.com>
para eu ▾

🌐 Inglês ▾ > português ▾ Traduzir mensagem

Dear Grafana,

Congratulations!

Your AWS Educate application has been approved. As a member of the AWS Educate program, you will

AWS Educate Student Portal

The AWS Educate Student Portal is the hub for AWS Educate students around the world to find AWS con

[Click here](#) to set your password / login to the AWS Educate Student Portal. After Account on your application. Note that Starter Accounts are not eligible for AWS

Bookmark the AWS Educate Student Portal for easy access, or [click here](#) to sign in directly.

You can access a video walk-through of the AWS Educate Student portal [here](#).

Free AWS Essentials Training

To access our foundational AWS Essentials online learning class for free and find other self-paced labs

- If you have an AWS account, sign in and [click here](#) to receive these benefits.
- If you do not have an AWS account, [click here](#) and follow the instructions to create an Amazon ID

Once you access the Training and Certification portal, click "Find Training" and search for "Technical" to

Thank you again for participating in AWS Educate and we hope you enjoy the program!

The AWS Educate Team

8. Para criar uma senha e poder logar

aws educate

Welcome to the AWS Educate Community

Definir sua senha

Sua credencial de login grafana [REDACTED]

Nova senha [REDACTED]

Verificar nova senha [REDACTED]

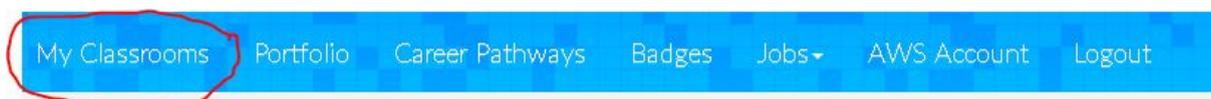
Definir senha

A senha inserida aqui será usada para acessar a comunidade da AWS Educate. É sempre mais seguro não usar a mesma senha utilizada em outros sites.

Verifique se sua senha atende aos seguintes requisitos:

- i. A senha deve ter pelo menos 8 caracteres
- ii. A senha deve conter pelo menos uma letra minúscula
- iii. A senha deve conter pelo menos um número
- iv. A senha não pode ser igual a ou conter seu nome de usuário
- v. A senha deve conter pelo menos um dos seguintes caracteres: ! # \$ % - _ = + < >

9. Na tela inicial, na parte superior direita, clicar em My Classrooms e clicar no botão “Continue” do pop up que aparecer depois



10. Depois, clicar em Go to Classroom

Course Name ↑↓	Description	Educator ↑↓	Course End Date ↑↓	Credit Allocated Per Student ↑↓	Status
Laboratório de Engenharia de Software I (2019)	Aplicação dos conceitos de engenharia de software e de banco de dados, através do desenvolvimento controlado de um sistema de software, desde a análise de requisitos até a aceitação do software, projeto do banco dados, aplicação de técnicas de verificação e validação e geração dos documentos relevantes.	Michelet Chávez	06/26/2019	\$50	Accepted Go to classroom

11. Na seguinte tela, aceitar os termos do contrato no fim da página.

Please read the terms and conditions shown below and click on the "I agree" button at the bottom of this page to continue.

Terms and Conditions

Welcome to the Vocareum, Inc. ("Vocareum") website located at www.vocareum.com (the "Site"). Please read these Terms of Service (the "Terms") and our Privacy Policy (<http://www.vocareum.com/privacy-policy/>) carefully because they govern your use of our Site and our web-based education and learning platform. To make these Terms easier to read, the Site and our platform are collectively called the "Services."

12. Finalmente, aparecerá o ambiente para acessar os recursos da infra-estrutura.

The screenshot shows the Vocareum AWS Educate Classroom Account dashboard. The top navigation bar includes the Vocareum logo, a home icon, a dropdown menu for "My Classes", a "Help" link, and the user name "grafana".

Welcome to AWS Educate Classroom Account

Use your AWS Educate Classroom Account to access to a wide variety of AWS Services and start building! Click on the AWS Console button to sign in and get started.

- [What regions can I use with a Classroom Account?](#)
- [Are Service Linked Roles supported?](#)
- [I can't start any resources. What happened?](#)
- [Can I create users within my Classroom Account for others to access?](#)
- [Can I create my own IAM policy within Starter Account or Classroom?](#)
- [How can I use IAM roles within AWS services?](#)
- [Are there any restrictions on AWS services in my Classroom Account?](#)

Your Classroom Account Status

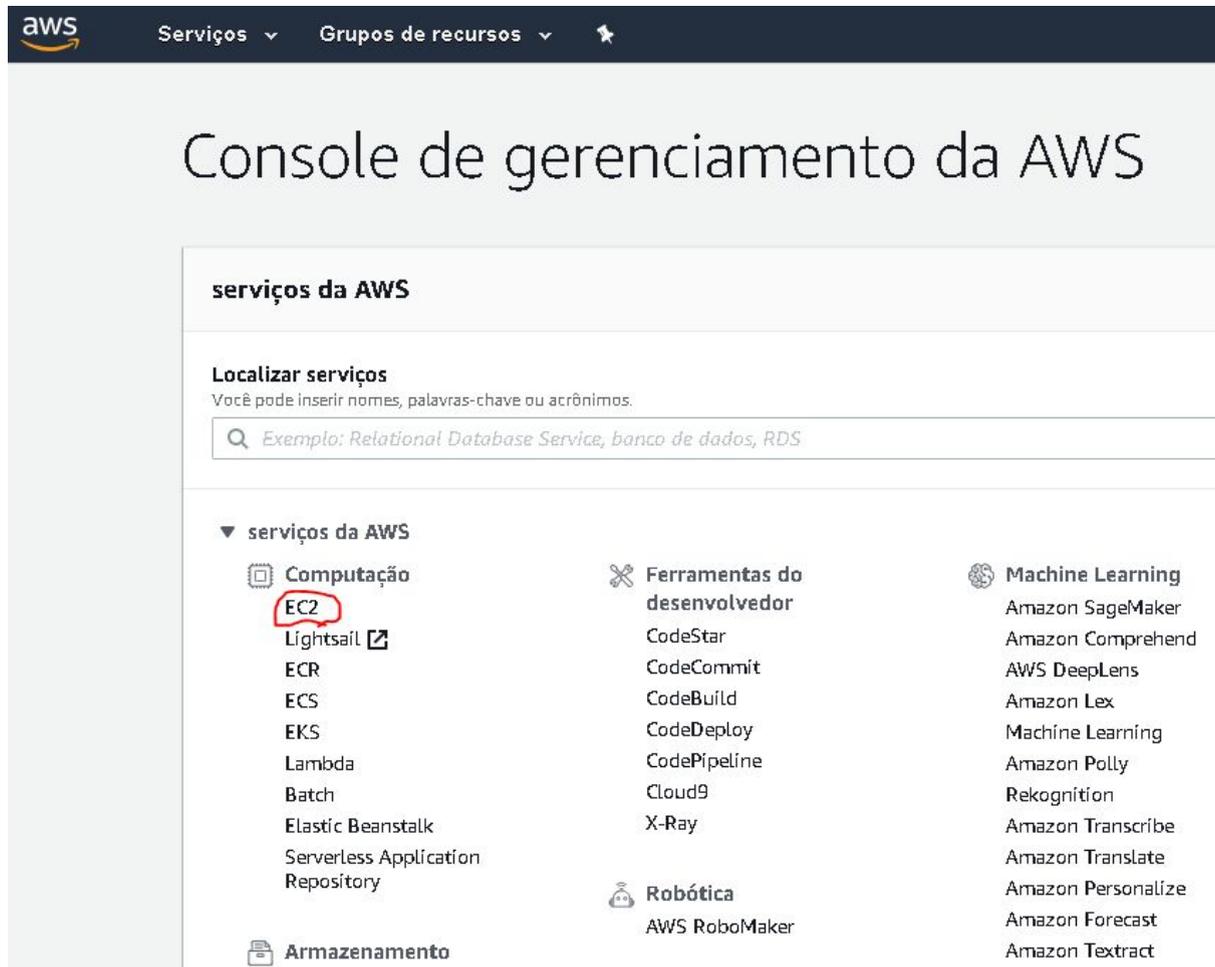
- Active** (person icon)
full access (0)
- \$50** (dollar sign icon)
remaining credits (estimated)
- 2:60** (clock icon)
session time

[Account Details](#) [AWS Console](#)

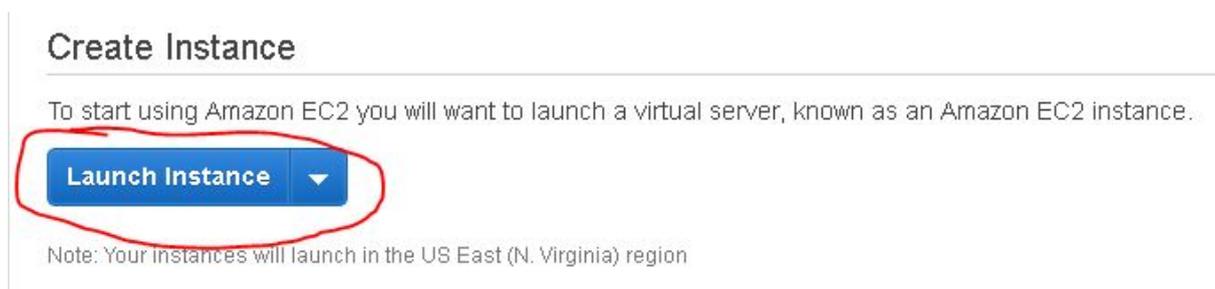
The graphic titled "Your Journey to a Cloud Career with AWS EDUCATE" illustrates a path from "CREATE YOUR PROFILE" to "GET A JOB" and "GET A JOB". It features icons for a person, a laptop, a gear, a play button, a person, a person, a person, and a person, along with the AWS logo and the text "YOUR JOURNEY TO A CLOUD CAREER WITH AWS EDUCATE".

II. Criação de instâncias no Laboratório AWS Educate

1. Uma vez na Classroom, clicar em AWS Console e aparecerá o console de gerenciamento da AWS. Expandir “serviços da aws” e clicar em EC2



2. Na tela de gerenciamento de recursos EC2, clicar em “Launch Instance”



3. Na tela seguinte, escolher o tipo de sistema operacional da instância e clicar em select. Neste exemplo vou escolher Ubuntu 18.04.

Free tier eligible

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-024a64a8685d05041 (64-bit x86) / ami-01ac7d9c1179d7b74 (64-bit Arm)

Select

64-bit (x86)
 64-bit (Arm)

Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

4. Depois, escolher uma instância com 2 vCpus e 4GB de RAM e clicar em “Next: Configure Instance Details”

Step 2: Choose an Instance Type

Currently selected: t2.medium (Variable ECUs, 2 vCPUs, 2.3 GHz, Intel Broadwell E5-2686v4, 4 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

5. Na seguinte tela, deixar tudo como está e clicar em “Next” para adicionar armazenamento.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances Launch into Auto Scaling Group

Purchasing option Request Spot instances

Network vpc-6a019b10 (default) Create new VPC

Subnet No preference (default subnet in any Availability Zone) Create new subnet

Auto-assign Public IP Use subnet setting (Enable)

Placement group Add instance to placement group

Capacity Reservation Open Create new Capacity Reservation

Cancel Previous **Review and Launch** **Next: Add Storage**

6. Para este exemplo, 8GB deve ser suficiente. Clicar em Next

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-0a12f6d1ed6c1d55e	<input type="text" value="8"/>	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

Cancel Previous **Review and Launch** **Next: Add Tags**

7. Na tela seguinte, clicar em Next para configurar os grupos de segurança.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage **5. Add Tags**

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value	Instances	Volumes
(127 characters maximum)	(255 characters maximum)	<input type="checkbox"/>	<input type="checkbox"/>

This resource currently has no tags

Choose the Add tag button or [click to add a Name tag](#).
Make sure your [IAM policy](#) includes permissions to create tags.

(Up to 50 tags maximum)

[Cancel](#)

8. O grupo de segurança é basicamente o firewall da sua instância.

Aqui vocês devem habilitar as portas que serão abertas e os ips de acesso para sua instância. Neste exemplo, estarão abertas as portas 22,80, 443, 5000 e 5432. Vocês podem abrir mais portas se quiserem. Os valores de “Security Group Name” e “Description” não foram alterados. O valor 0.0.0.0/0 significa que qualquer IP pode acessar a porta. Clicar em Review and Launch.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more about Amazon EC2 security groups.](#)

Assign a security group: Create a new security group
 Select an existing security group

Security group name:
Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
HTTP	TCP	80	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
HTTPS	TCP	443	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
PostgreSQL	TCP	5432	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
Custom TCP FV	TCP	5000	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

Add Rule

Warning

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel

Previous

Review and Launch

9. Na tela seguinte aparecerá um resumo da sua instância. Clicar em Launch.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security. Your security group, launch-wizard-1, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

Your instance configuration is not eligible for the free usage tier

To launch an instance that's eligible for the free usage tier, check your AMI selection, instance type, configuration options, or storage devices. [Learn more about free usage tier eligibility and usage restrictions.](#)

AMI Details

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-024a64a6695d05041

Free tier eligible
Ubuntu Server 18.04 LTS (HVM), EBS General Purpose (SSD) Volume Type - Support available from Canonical (<http://www.ubuntu.com/cloud/services>)
Root Device Type: ebs - Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.medium	Variable	2	4	EBS only	-	Low to Moderate

Security Groups

Security group name: launch-wizard-1
Description: launch-wizard-1 created 2019-06-05T09:29:17.282-03:00

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	

Cancel

Previous

Launch

Na seguinte tela aparecerá um pop up para criar uma chave para poder acessar seu recurso via SSH. Selecionar: Create a new Pair e identifique o arquivo com um nome (no exemplo: labaws). Clicar em “Download Key Pair” e guardar num lugar seguro.

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.

Create a new key pair

Key pair name

labaws

Download Key Pair

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

10. Após clicar em “Download Key Pair”, será baixado o arquivo “labaws.pem” e a instância será criada. A seguinte tela deverá aparecer

Launch Status

✓ Your instances are now launching
The following instance launches have been initiated: [i-00b35b54d9c0730ee](#) [View launch log](#)

ℹ Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click **View Instances** to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

- [How to connect to your Linux instance](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

- [Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)
- [Create and attach additional EBS volumes](#) (Additional charges may apply)
- [Manage security groups](#)

[View Instances](#)

Clicar em “View Instances” para acessar o portal de gerenciamento de instâncias do EC2.

III. Conexão com instâncias no EC2

1. Na [tela de gerenciamento de instâncias do EC2](#) deverá aparecer uma tela como esta:

The screenshot shows the AWS Management Console interface for an EC2 instance. At the top, there are buttons for 'Launch Instance', 'Connect', and 'Actions'. Below is a search bar and a table of instances. The instance 'i-00b35b54d9c0730ee' is highlighted in blue. Below the table, the instance details are shown, with the 'Public DNS' and 'IPv4 Public IP' fields highlighted in yellow.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
	i-00b35b54d9c0730ee	t2.medium	us-east-1b	running	2/2 checks ...	None	ec2-18-206-227-253.co...	18.206.227.253

Instance: i-00b35b54d9c0730ee Public DNS: ec2-18-206-227-253.compute-1.amazonaws.com

Description		Status Checks	Monitoring	Tags
Instance ID	i-00b35b54d9c0730ee	Public DNS (IPv4)	ec2-18-206-227-253.compute-1.amazonaws.com	
Instance state	running	IPv4 Public IP	18.206.227.253	
Instance type	t2.medium	IPv6 IPs	-	
Elastic IPs		Private DNS	ip-172-31-86-38.ec2.internal	
Availability zone	us-east-1b	Private IPs	172.31.86.38	

Reparar no endereço e no IP público da sua instância. Com esses dados + a chave de acesso criada + um terminal com SSH é possível se conectar a sua instância para instalar as aplicações necessárias.

As instruções também são acessíveis se clicar no botão Connect na parte superior:

The screenshot shows the 'Connect To Your Instance' dialog box. It has a title bar with a close button. The main content area contains instructions on how to connect to the instance. There are two radio buttons for 'I would like to connect with'. Below that, there are numbered steps for 'To access your instance:'. An example command is provided. At the bottom right, there is a 'Close' button.

Connect To Your Instance [X]

I would like to connect with A standalone SSH client *i* A Java SSH Client directly from my browser (Java required) *i*

To access your instance:

1. Open an SSH client. (find out how to [connect using PuTTY](#))
2. Locate your private key file (labaws.pem). The wizard automatically detects the key you used to launch the instance.
3. Your key must not be publicly viewable for SSH to work. Use this command if needed:

```
chmod 400 labaws.pem
```
4. Connect to your instance using its Public DNS:

```
ec2-18-206-227-253.compute-1.amazonaws.com
```

Example:

```
ssh -i "labaws.pem" ubuntu@ec2-18-206-227-253.compute-1.amazonaws.com
```

Please note that in most cases the username above will be correct, however please ensure that you read your AMI usage instructions to ensure that the AMI owner has not changed the default AMI username.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

2. Num terminal com ssh, podemos fazer:

```
Prompt de Comando - ssh -i labaws.pem ubuntu@ec2-18-206-227-253.compute-1.amazonaws.com
C:\Users\adm\Downloads>chmod 400 labaws.pem

C:\Users\adm\Downloads>ssh -i labaws.pem ubuntu@ec2-18-206-227-253.compute-1.amazonaws.com
The authenticity of host 'ec2-18-206-227-253.compute-1.amazonaws.com (18.206.227.253)' can't be
established.
ECDSA key fingerprint is SHA256:uHjUNn/2aWpZpVnuyOM80hn70845CUNopBrVcRhFqKg.
Are you sure you want to continue connecting (yes/no)? yes
```

Se tudo der certo, aparecerá um prompt do usuário ubuntu na instância

```
ubuntu@ip-172-31-86-38: ~
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.15.0-1039-aws x86_64)Welcome to Ubuntu 18.04.2 LTS (
GNU/Linux 4.15.0-1039-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage

System information as of Wed Jun  5 13:01:28 UTC 2019

System load:  0.0          Processes:           95
Usage of /:   13.5% of 7.69GB Users logged in:      0
Memory usage: 4%          IP address for eth0: 172.31.86.38
Swap usage:  0%

0 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-86-38: $
```

Depois, vocês precisarão instalar o python, o node, o postgresql, clonar os repositórios via git e executar suas aplicações!