

Python programming language

Week 1. Python programming environment

Alisher Ismailov

Lecturer

Department of Information technology
Andijan Branch of Tashkent Financial Institute

Email: alisherismailov534@gmail.com

Python dasturlash tili

1-Mavzu. Python dasturlash muhiti

Ma'ruzachi: Alisher Ismoilov

Axborot texnologiyalari kafedrası
Toshkent moliya instituti Andijon filiali

Elektron pochta: alisherismailov534@gmail.com

1-Mavzu. Python dasturlash muhiti

Reja:

1. Python dasturlash tili
2. Integrallashgan dasturlash muhiti
3. Python dasturlash muhitini yaratish
4. Anaconda distirbutori windowsga o'rnatish.
5. Python dasturlash tilida birinchi dasturni yaratish

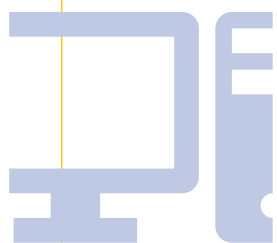
Python dasturlash tili

Python dasturlash tili g'oyasi 1989 yilda uning yaratuvchisi Guido van Rossum tomonidan paydo bo'lgan. Rossum ABC tilining barcha yaxshi xususiyatlarini va kengaytirilishi va istisnolardan foydalanish kabi yangi kerakli xususiyatlarni birlashtirgan yangi tilni ishlab chiqish ustida ish boshlagan. Python 1.0 1994 yilda ishlab chiqarilgan; u Modula-3 dan modul tizimini oldi, Amoeba operatsion tizimi bilan o'zaro aloqada bo'lish imkoniyatiga ega va funksional dasturlash vositalarini o'z ichiga oladi.

Python dasturlash tili



2000-yilda Python dasturlash tilining asosiy ishlab chiqish guruhi Beopen.com saytiga ko‘chdi va 2000-yil oktyabr oyida Python 2.0 ko‘plab improvizatsiyalar, jumladan, axlat yig‘uvchi va Unicode-ni qo‘llab-quvvatlash bilan yangilandi.



2008 yil dekabr oyida Python 3.0 versiyasi chiqdi, u orqaga qarab moslashishdan voz kechdi va takrorlanuvchi konstruksiyalar va modullarni oldini olish uchun yangi dizaynga ega bo‘ldi. Python dasturlash tili hozirgi kunda hali ham ishlab chiquvchilarga obyektga yo‘naltirilganlik va funksional dasturlash variantlarini taklif qiluvchi ko‘p paradigmali dastrulash tili hisoblanadi.

Python dasturlash tili

Python dasturlash tili bugungi kunda bir nechta ilovalarga ega, jumladan Jython, Java Virtual Machine uchun Java tilida yozilgan; Umumiy til infratuzilmasi uchun C# tilida yozilgan IronPython va RPython tilida yozilgan va C tiliga tarjima qilingan PyPy versiyasi. Shuni ta'kidlash shoizki, C tilida yozilgan va Python Software Foundation tomonidan ishlab chiqilgan CPython Pythonning standart va eng mashhur ilovasi hisoblanadi. 2015-yil fevral oyida ishlab chiqarilgan Python 3.4.3 boshqa yangi xususiyatlar qatorida Unicode qo'llab-quvvatlashida keskin yaxshilanishni taklif etadi.

Python dasturlash tili obyektga yoʻnaltirilgan dasturlash tili (OOP)ning asosiy tushunchalari



Sinf



Obyektlar



Polimorfizm



Inkapsulyatsiya



Vorislik (inheritence)



Ma'lumotlarni abstraktsiya qilish

Integrallashgan dasturlash muhiti (integrated development environment IDE)

IDE dasturiy ta'minotni ishlab chiqish vositasi bo'lib, asosan dasturchilar tomonidan dasturlar yoki dasturiy ta'minotni yozish va sinab ko'rish uchun foydalaniladigan dastur hisoblanadi. Python dasturlash tilidan foydalanish uchun bir qancha IDElar mavjud. Quyidagi jadvalda IDElarni nomi keltirilgan.

Integrallashgan dasturlash muhiti (integrated development environment IDE)

IDE nomi	Sistemalar
<u>Thonny</u>	Windows, Linux, Mac OS X
<u>Komodo</u>	Windows/Linux/Mac OS X
<u>LiClipse</u>	Linux/Mac OS X/Windows
<u>NetBeans</u>	Linux, Mac, Solaris, Windows
<u>PyCharm</u>	Linux/Mac OS X/Windows
<u>Python for VS Code</u>	Linux/Mac OS X/Windows
<u>KDevelop</u>	Linux/Mac OS X/(Windows)
<u>PyDev</u>	Eclipse
<u>Wing</u>	Windows, Linux, Mac OS X
<u>PyScripter</u>	Windows
<u>Spyder</u>	Windows/Linux/macOS
IDLE	Windows/Linux/Mac OS X/
<u>IdleX</u>	Windows/Linux/Mac OS X/
<u>u.dev</u>	Windows
<u>Pyzo</u>	Windows/Linux/Mac OS X
<u>PythonToolkit</u>	Windows/Linux/Mac OS X
<u>PyStudio</u>	Windows/Linux/Mac OS X
<u>Python Tools for Visual Studio</u>	Windows
<u>Exedore</u>	Mac OS X

Python dasturlash muhitini yaratish

Python dasturlash tilidan foydalanish uchun uning dastur muhitini yaratib olishimiz kerak. Dastur muhitini yaratishda sodda va ishlatish oson bo'lgan Anaconda distributeridan foydalanish tavsiya etiladi.

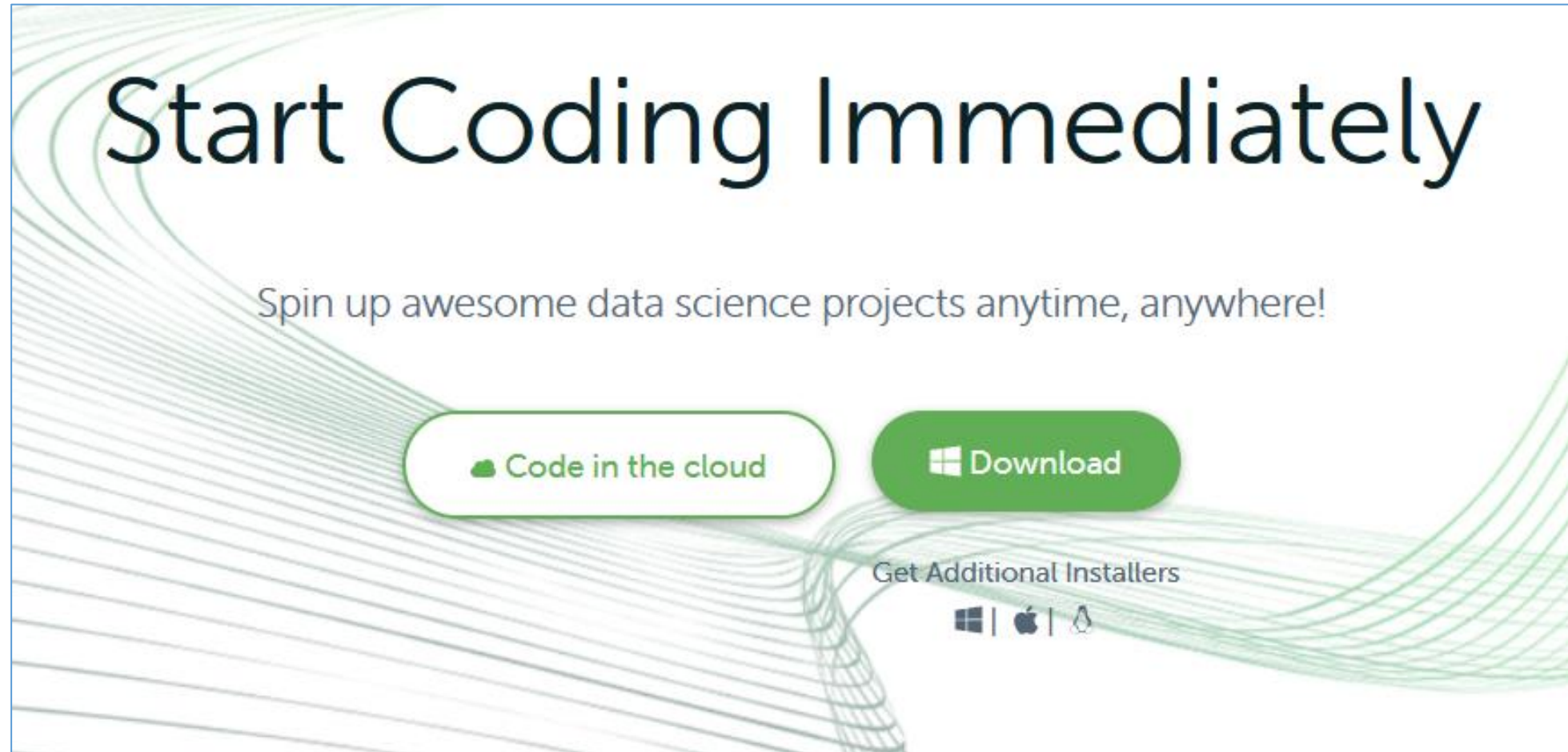
Python dasturlash muhitini yaratish

- **Anaconda** - bu dasturiy paketlar menejeri, dastur muhit menejeri va Python dasturlash tili distributori hisoblanadi.
- Anaconda distributorini afzalliklaridan biri bu Anaconda distributori tayyor dasturiy paketlar bilan birga komputerga oʻrnatiladi. Bu dasturiy paketlar katta loyihalar yaratilganda qoʻllaniladi. Bunday dasturiy paketlarni bir qanchasini sanab oʻtish mumkin, numpy, scikit-learn, scipy, panda va boshqalar. Anacondani oʻrnatganingizdan soʻng sizga qoʻshimcha paketlar kerak boʻlsa, ushbu paketlarni oʻrnatish uchun Anaconda paket menejeri, conda yoki pipdan foydalanishingiz mumkin. Bu jarayonni foydasi, bir nechta paketlar orasidagi bogʻliqlikni siz oʻzingiz boshqarishingiz shart emas Anaconda avtomatik tarzda boshqarib komputeringizga oʻrnatadi.
- Biz Python dasturlash tilini Jupyter Notebook IDEsi orqali oʻrganamiz. Jupyter Notebook IDE Anaconda distributori bilan birga oʻrnatiladi.

Anaconda distirbutorini windowsga o‘rnatish.

Anaconda veb-saytiga kiring
(<https://www.anaconda.com/>) va suratda
ko‘rsatilgandek grafik o‘rnatuvchisini
(Download) ustiga bir marta bosing.

Anaconda distributorini windowsga o'rnatish.

The image shows a promotional banner for Anaconda. It features a background of light green wavy lines. At the top, the text "Start Coding Immediately" is written in a large, dark blue font. Below this, a smaller line of text reads "Spin up awesome data science projects anytime, anywhere!". In the center, there are two buttons: a white button with a green border and text "Code in the cloud" (with a small green cloud icon), and a solid green button with a white Windows logo and text "Download". At the bottom right, the text "Get Additional Installers" is followed by icons for Windows, Apple, and Linux.

Start Coding Immediately

Spin up awesome data science projects anytime, anywhere!

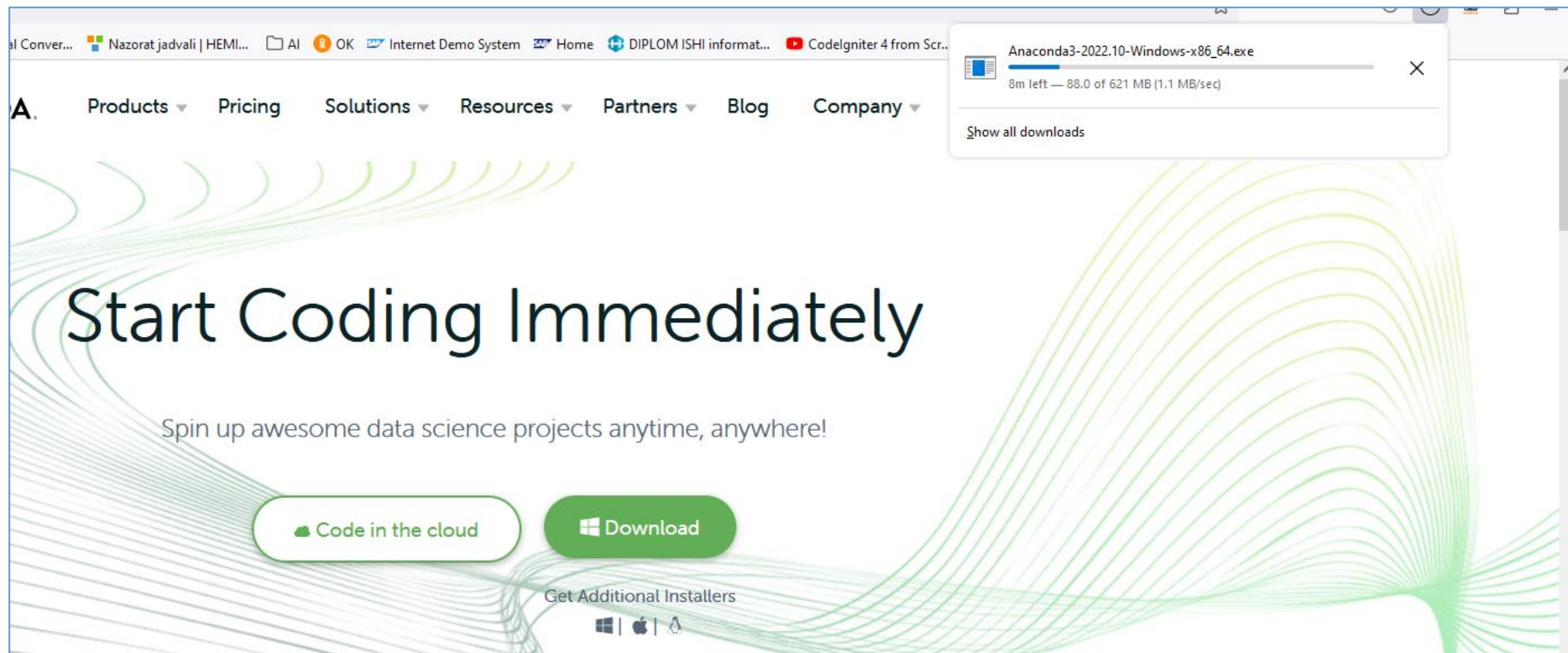
[Code in the cloud](#) [Download](#)

Get Additional Installers

Windows | Apple | Linux

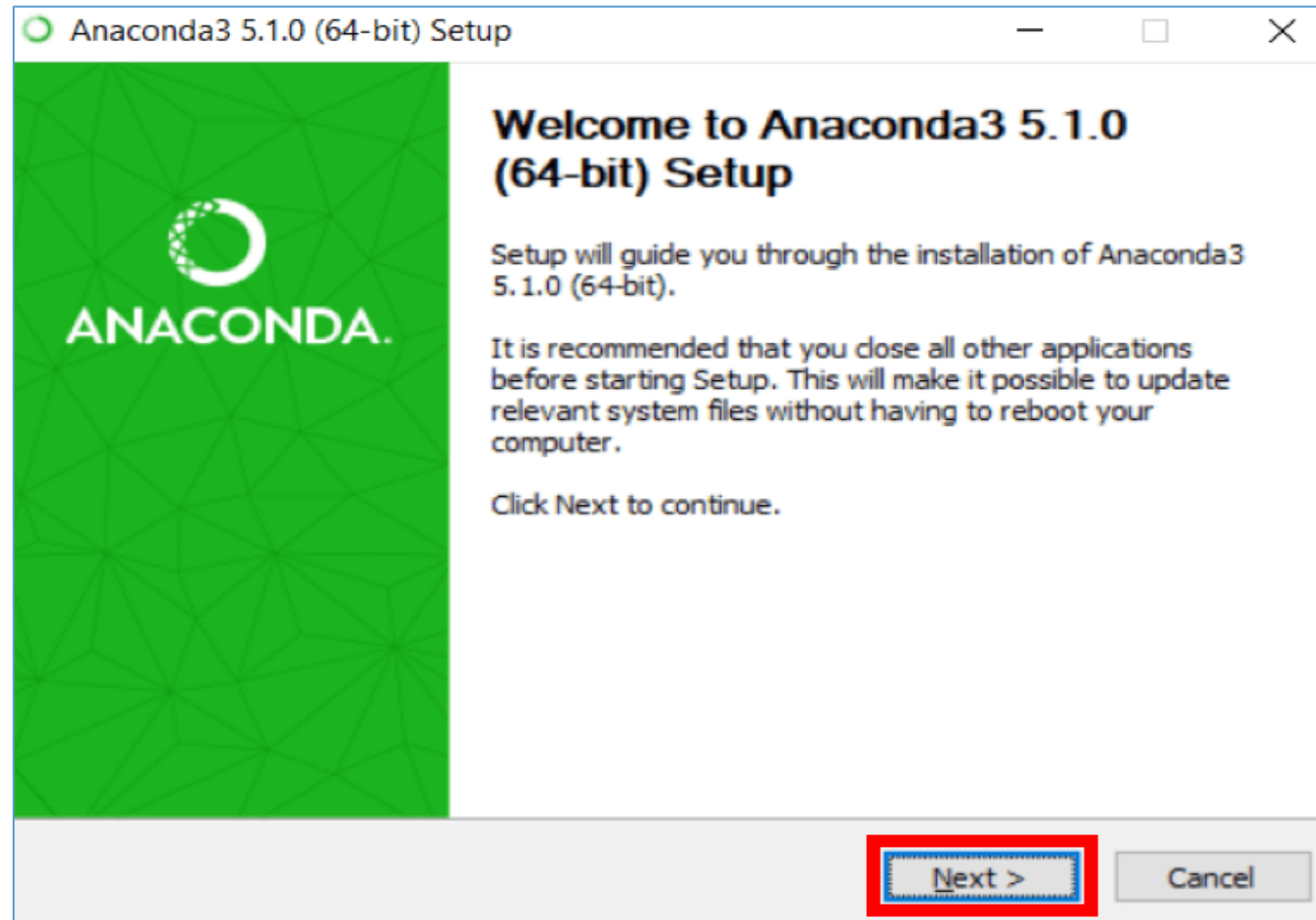
Anaconda distirbutorini windowsga oʻrnatish.

Yuklab olish joyini toping va ustiga ikki marta bosing.



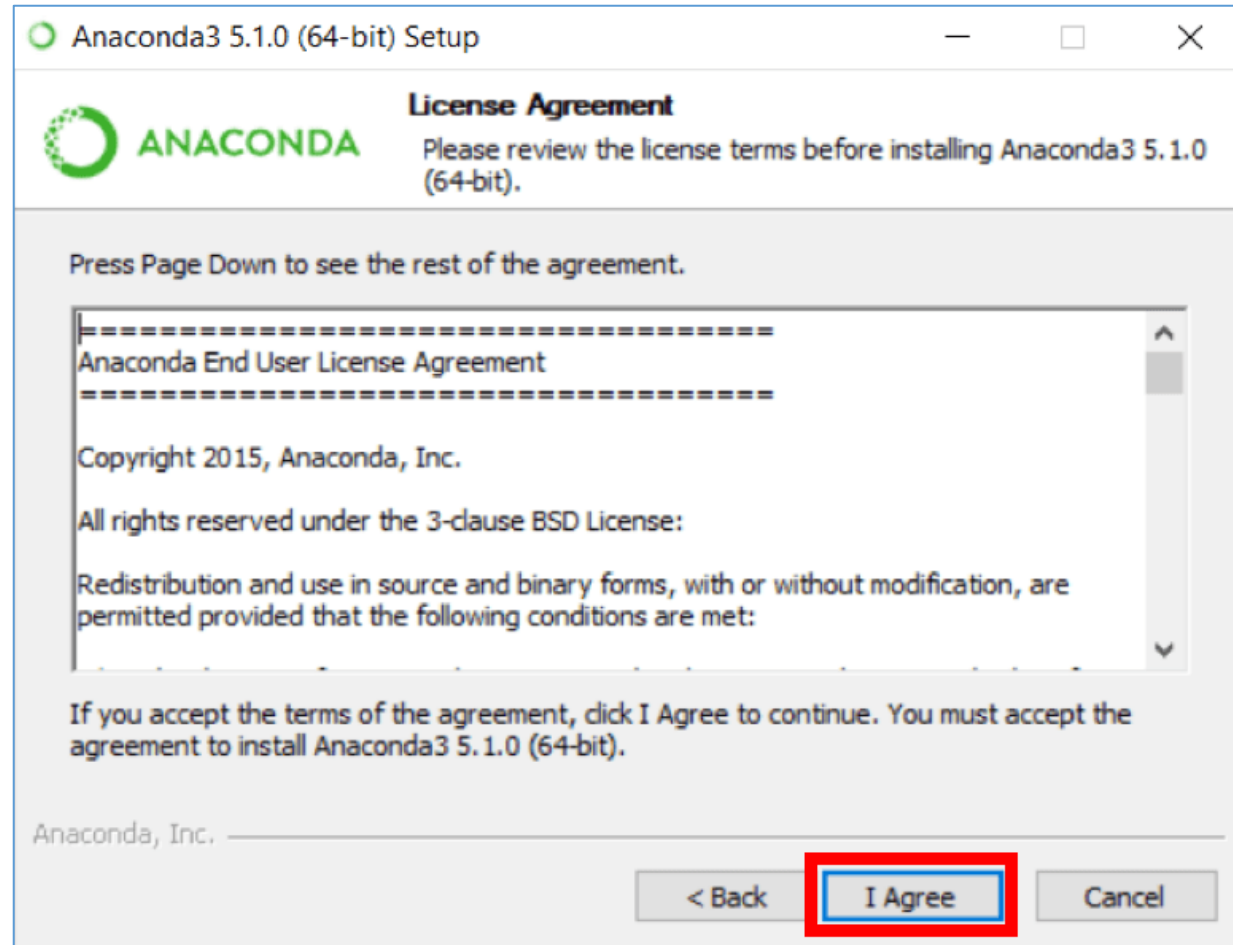
Anaconda distributorini windowsga o‘rnatish.

Quyidagi ekran paydo bo‘lganda, Keyingi (Next) tugamasini bosing.



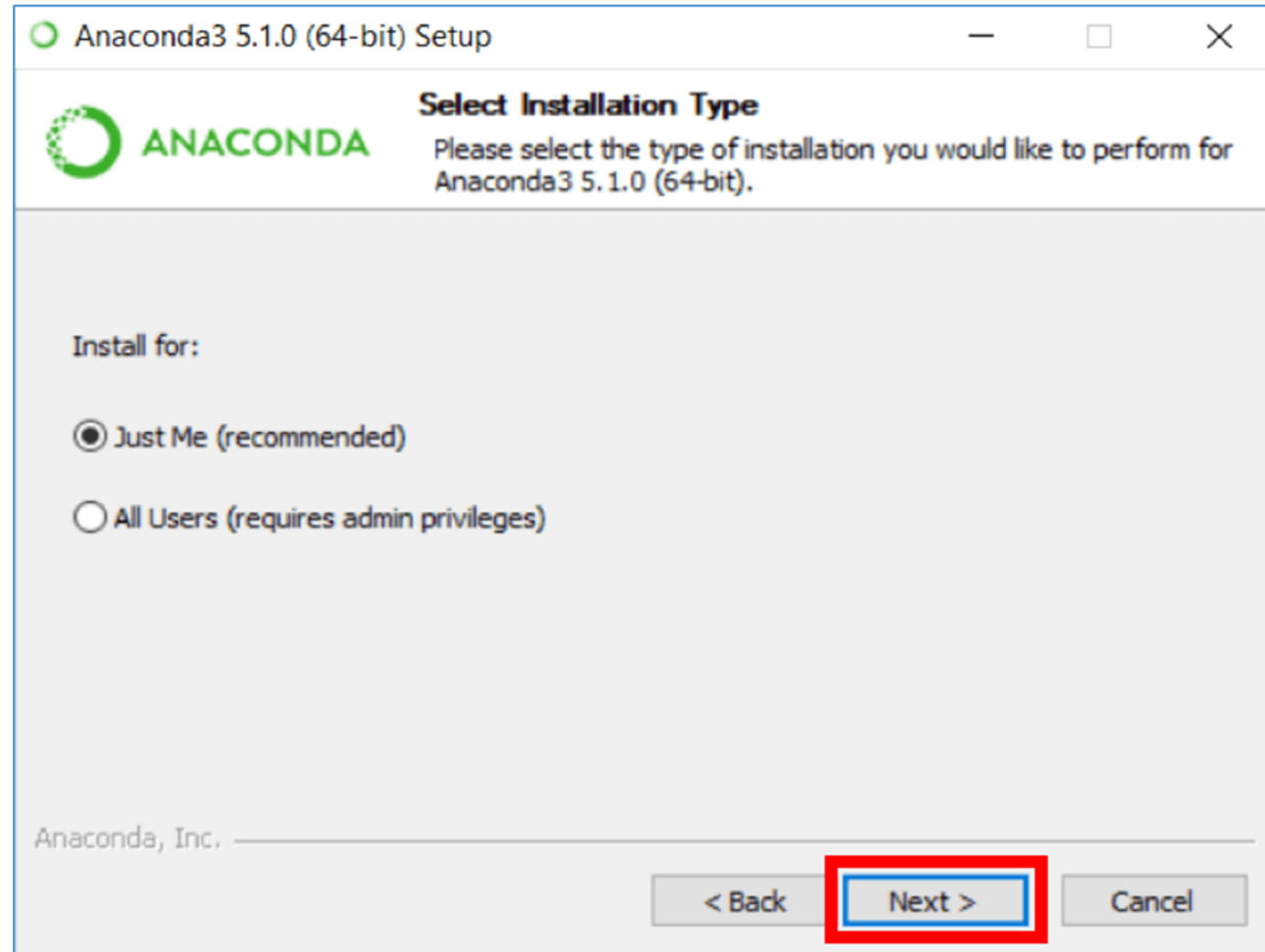
Anaconda distirbutorini windowsga o‘rnatish.

Litsenziya shartnomasini o‘qing va "Roziman" (I Agree) tugmasini bosing.



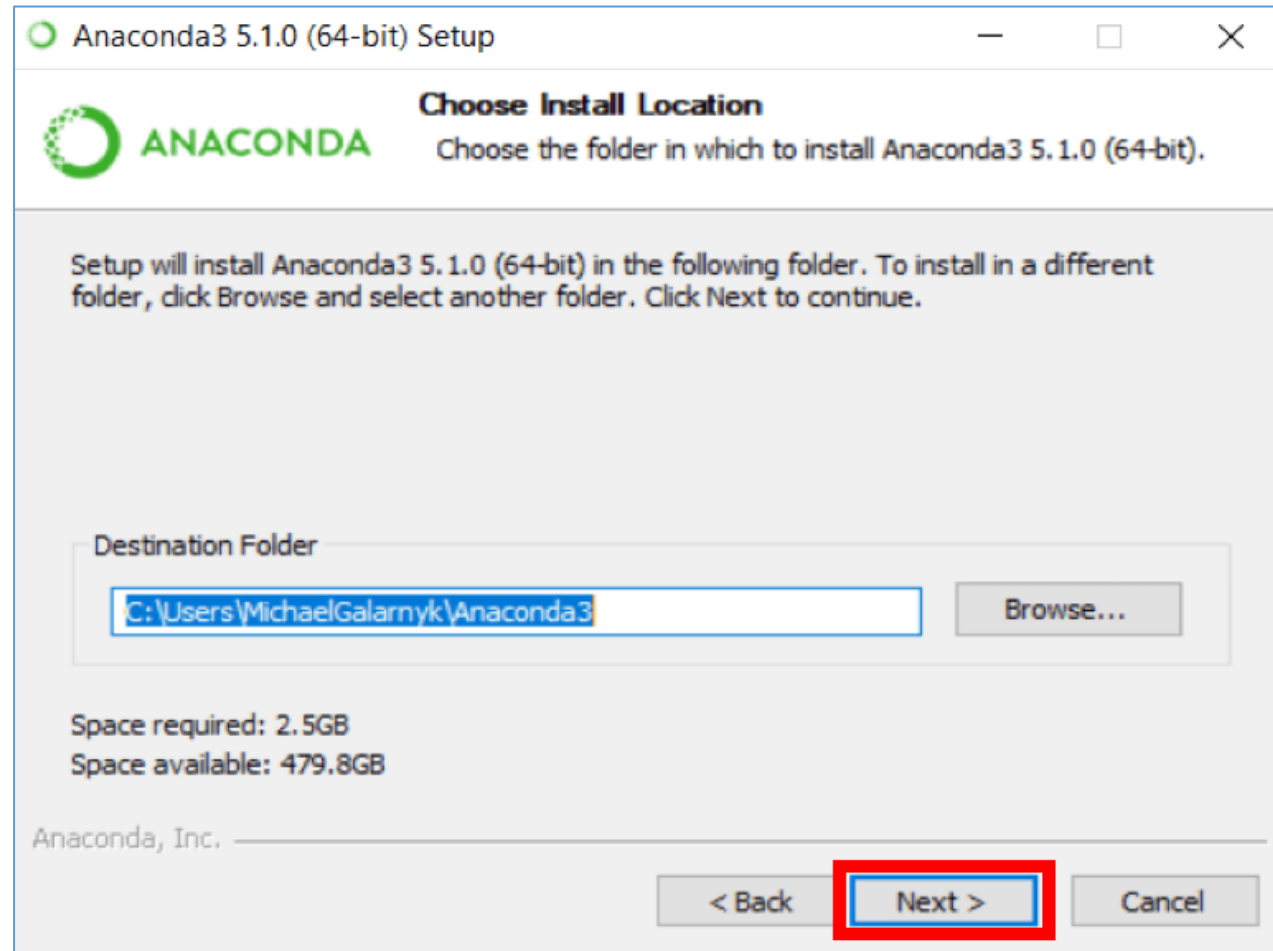
Anaconda distributorini windowsga oʻrnatish.

Keyingi tugmasini (Next) bosing.



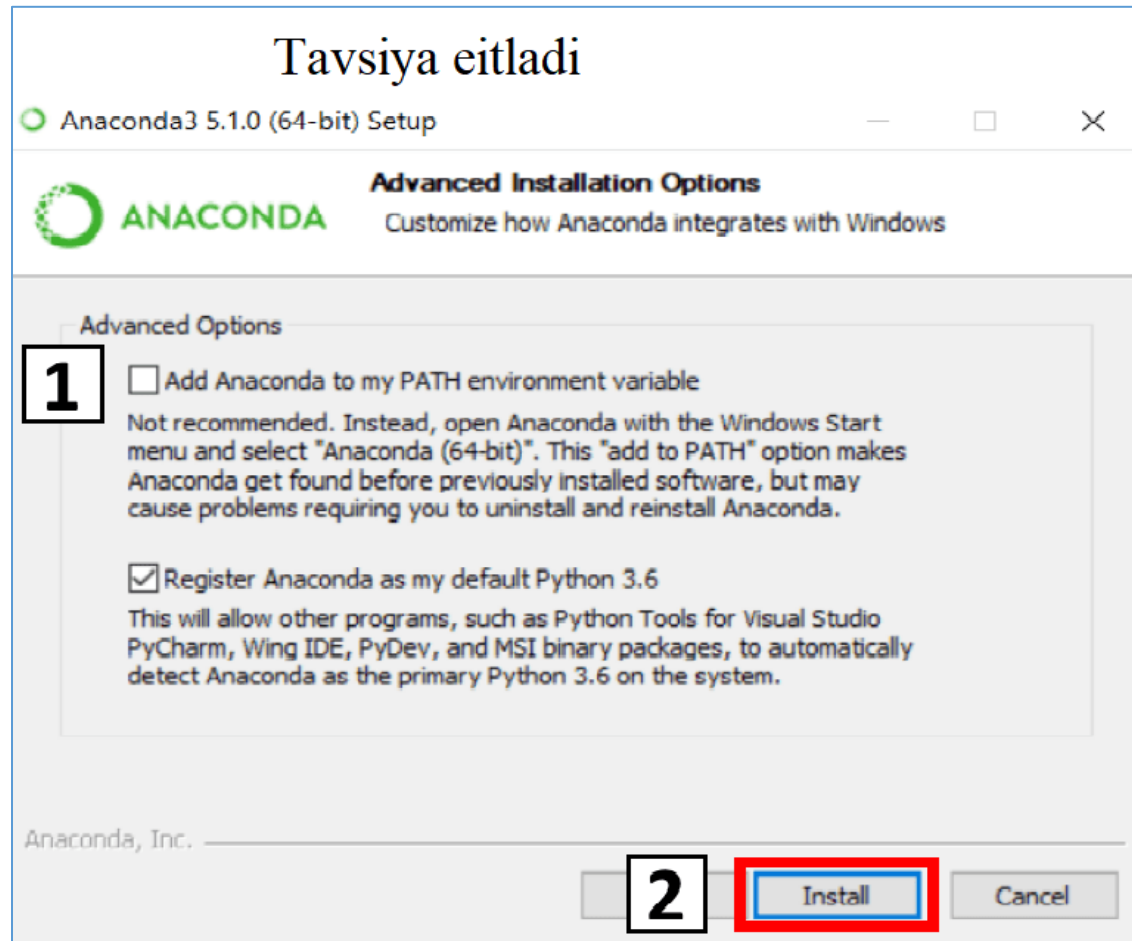
Anaconda distirbutorini windowsga oʻrnatish.

Oʻrnatish joyingizga eʼtibor bering va "Keyingi" (Next) tugmasini bosing.



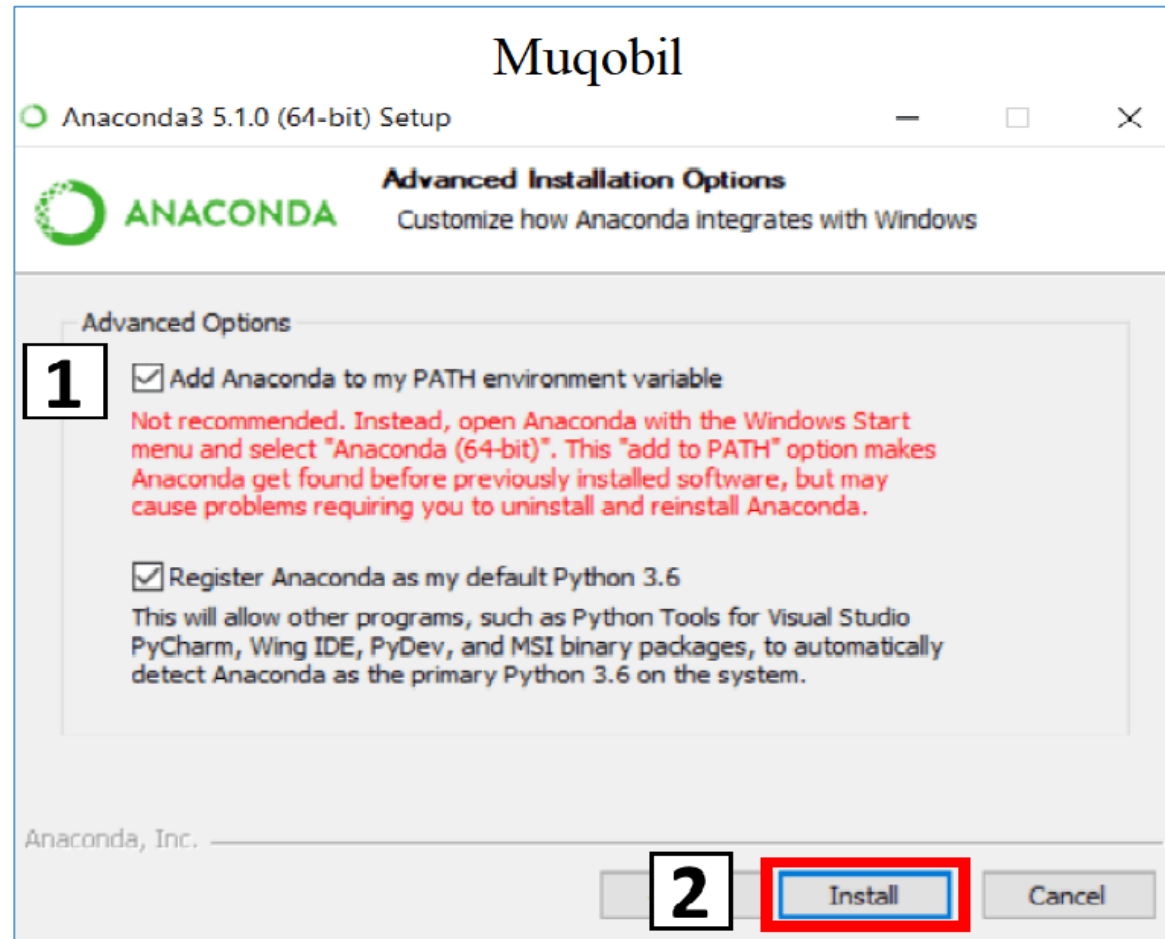
Anaconda distirbutorini windowsga oʻrnatish.

Tavsiya etilgan holatda Oʻrnatish (Install) tugamasini bosing.



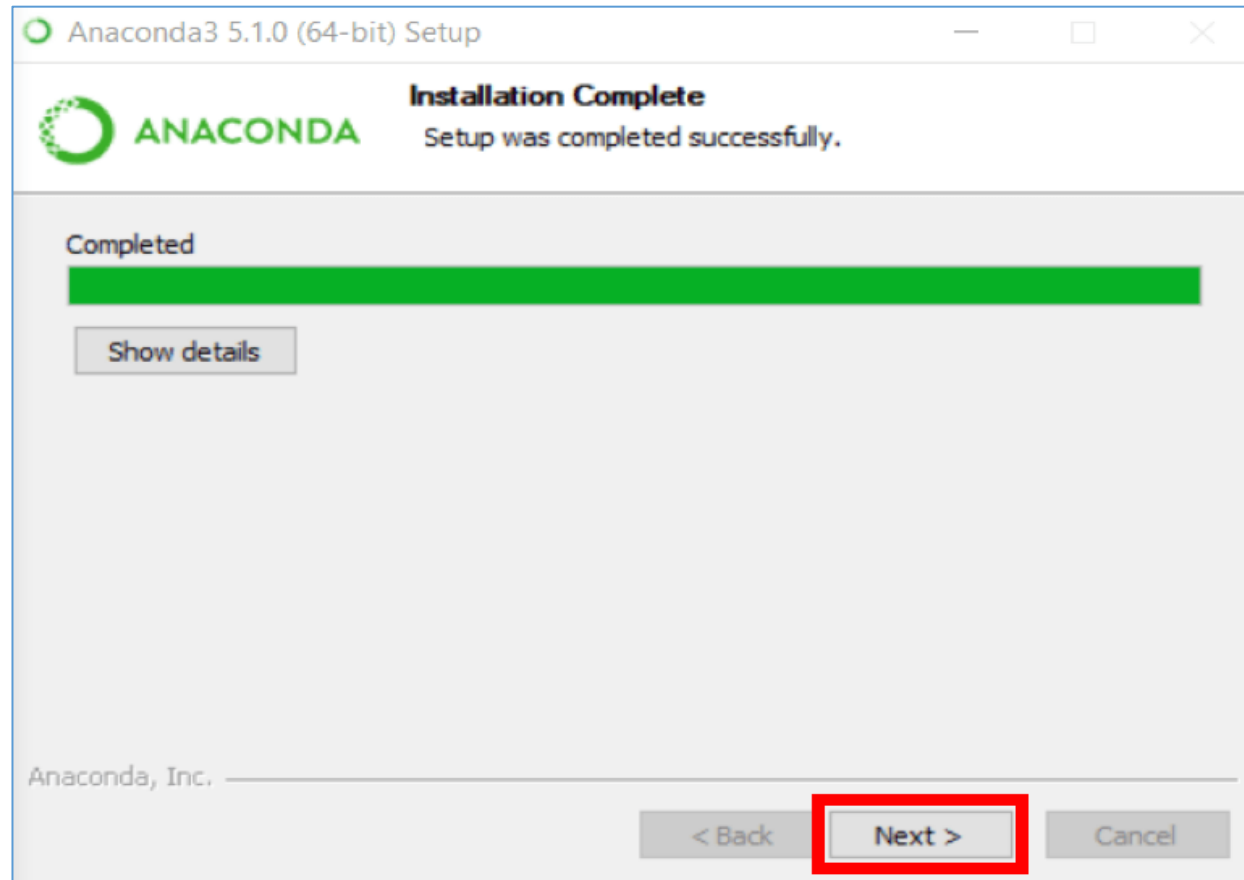
Anaconda distirbutorini windowsga o‘rnatish.

Tavsiya etilgan holatda O‘rnatish (Install) tugamasini bosing.



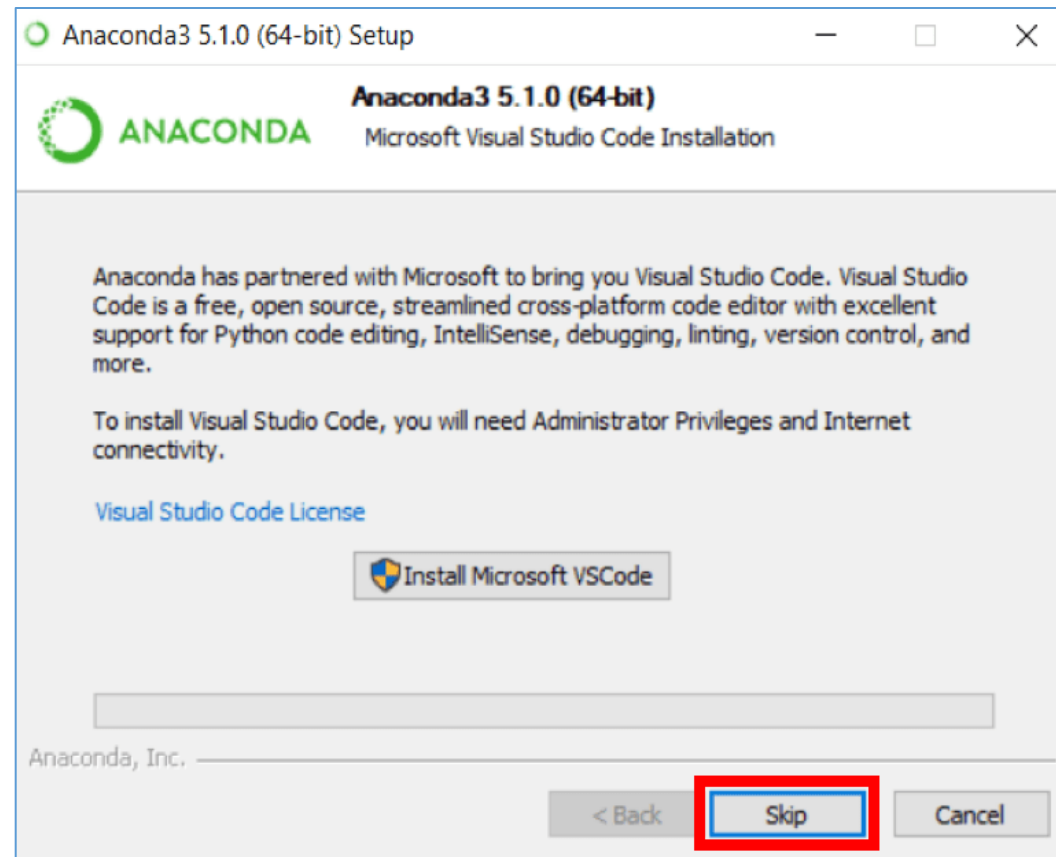
Anaconda distributorini windowsga oʻrnatish.

Keyingi (Next) tugamasini bosing



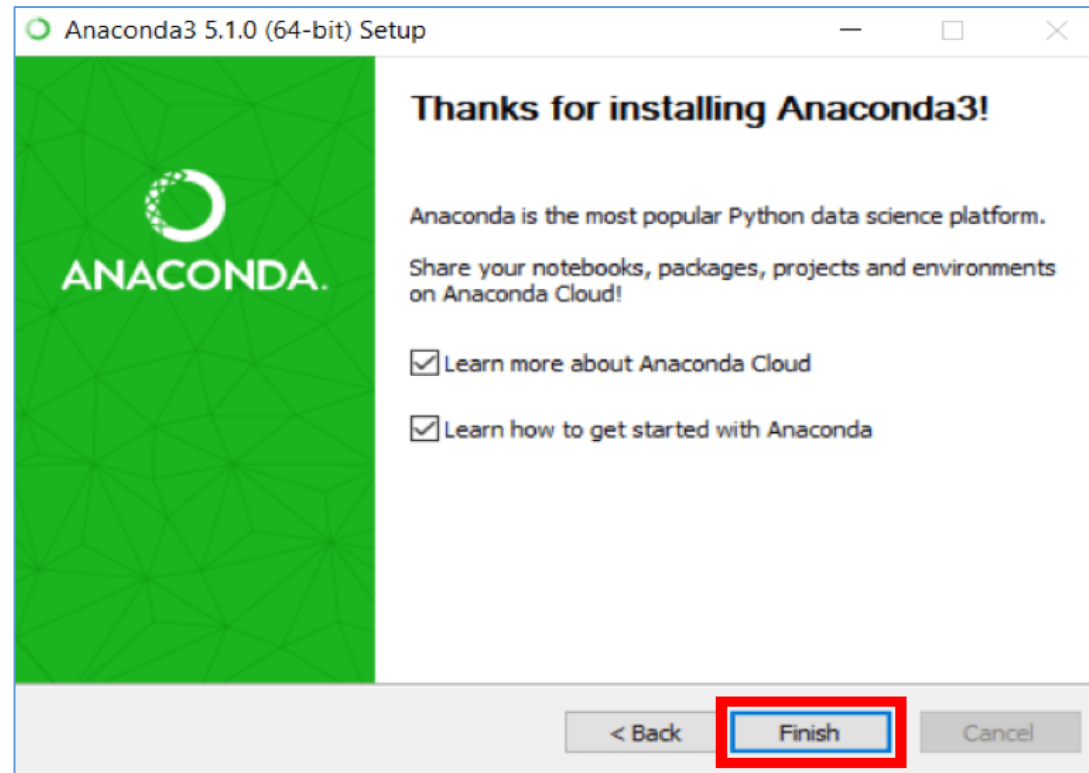
Anaconda distirbutorini windowsga o‘rnatish.

Agar xohlasangiz, Microsoft VSCode dasturini ham o‘rnatishingiz mumkin, bu ixtiyoriy, biz o‘rnatmaymiz. Skip tugamasini bosamiz.



Anaconda distirbutorini windowsga o‘rnatish.

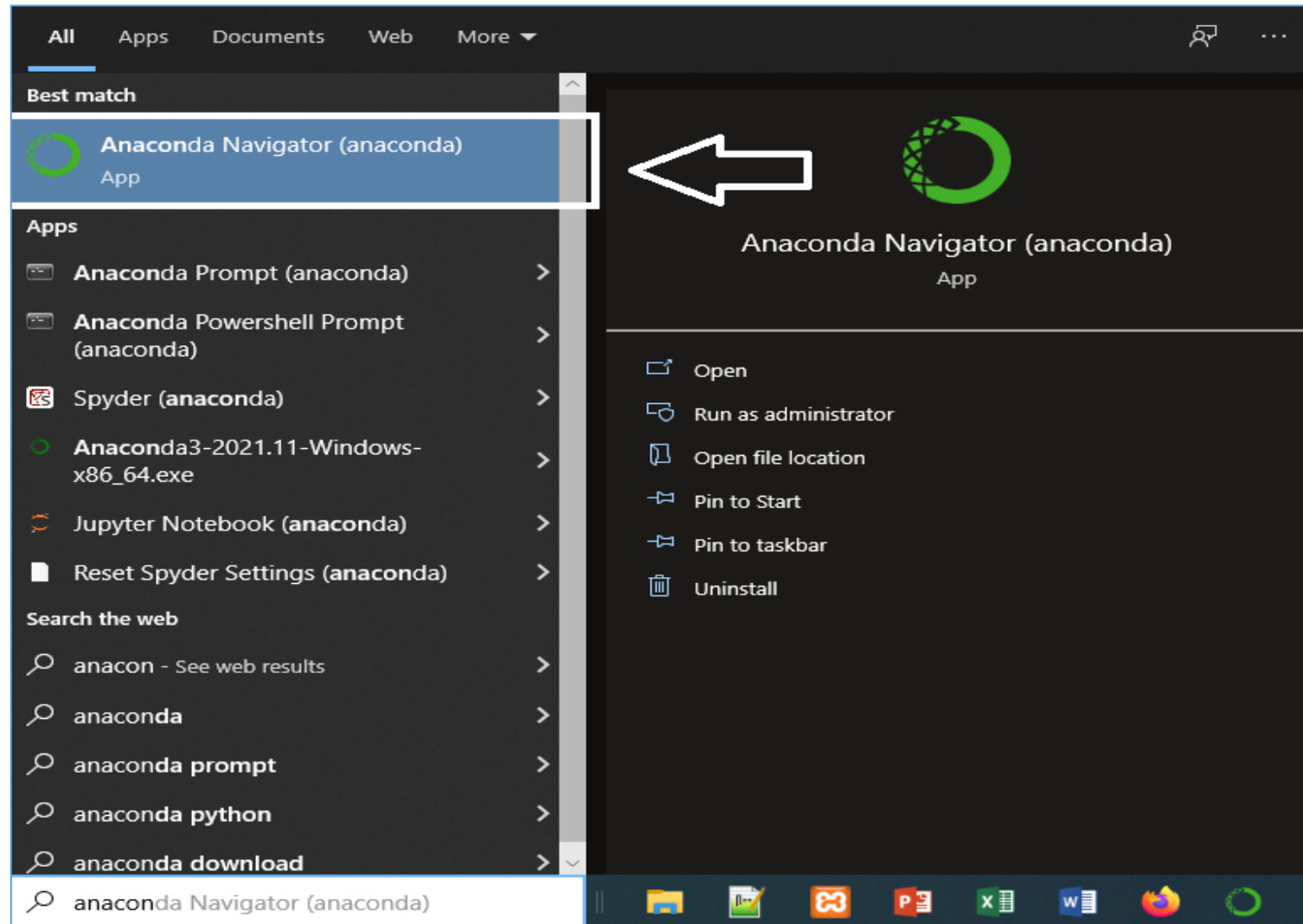
Tugadi (Finish) tugmasini bosing.



Anaconda distributori komputerga o‘rnatildi. Keyingi bo‘limda Jupyter Notebook IDEsi orqali Python dasturlash tilida birinchi dasturimizni yozib o‘rganamiz.

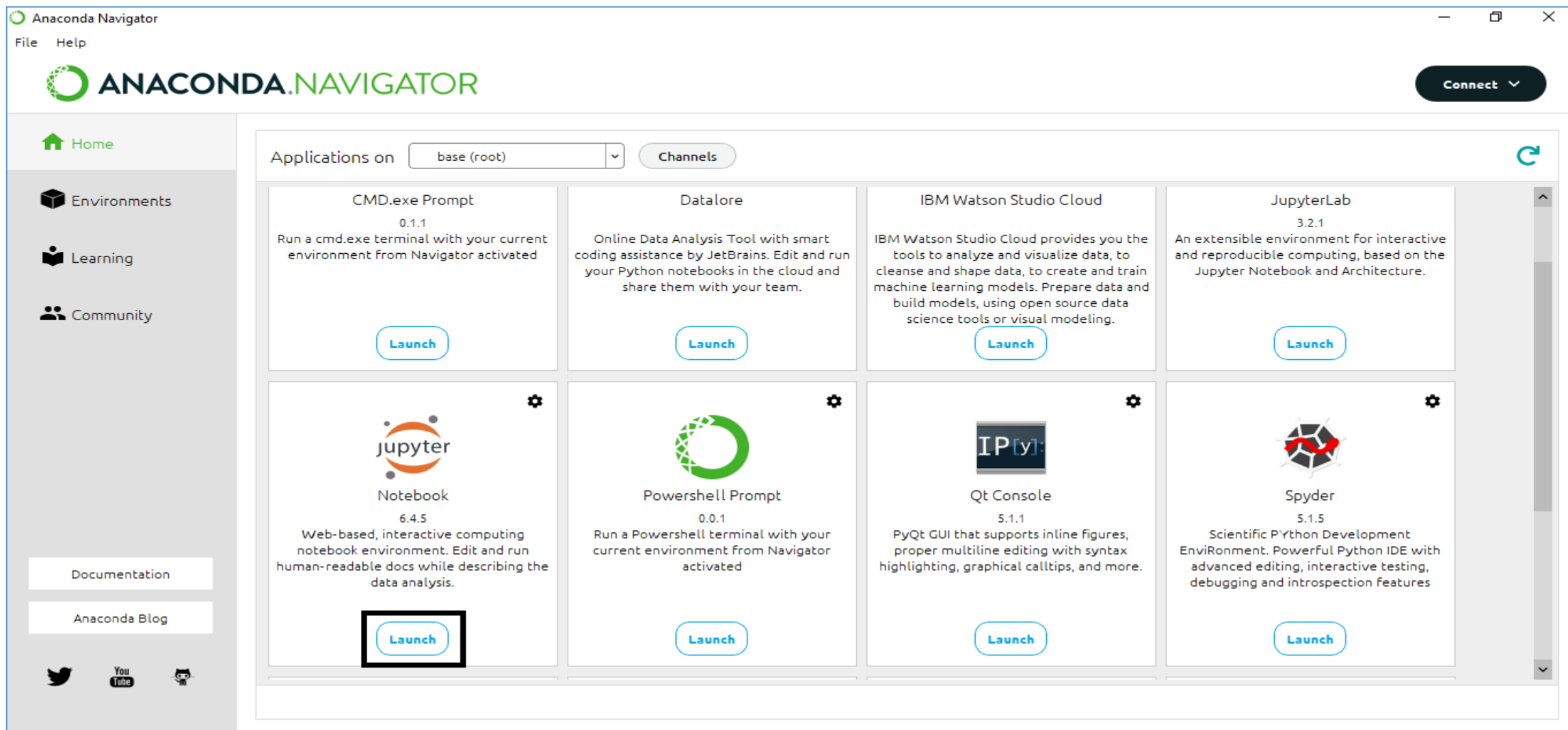
Python dasturlash tilida birinchi dasturni yaratish

Windows sistemasida “Start” tugmasini bosib, Anaconda Navigator dasturini ishga tushiring.



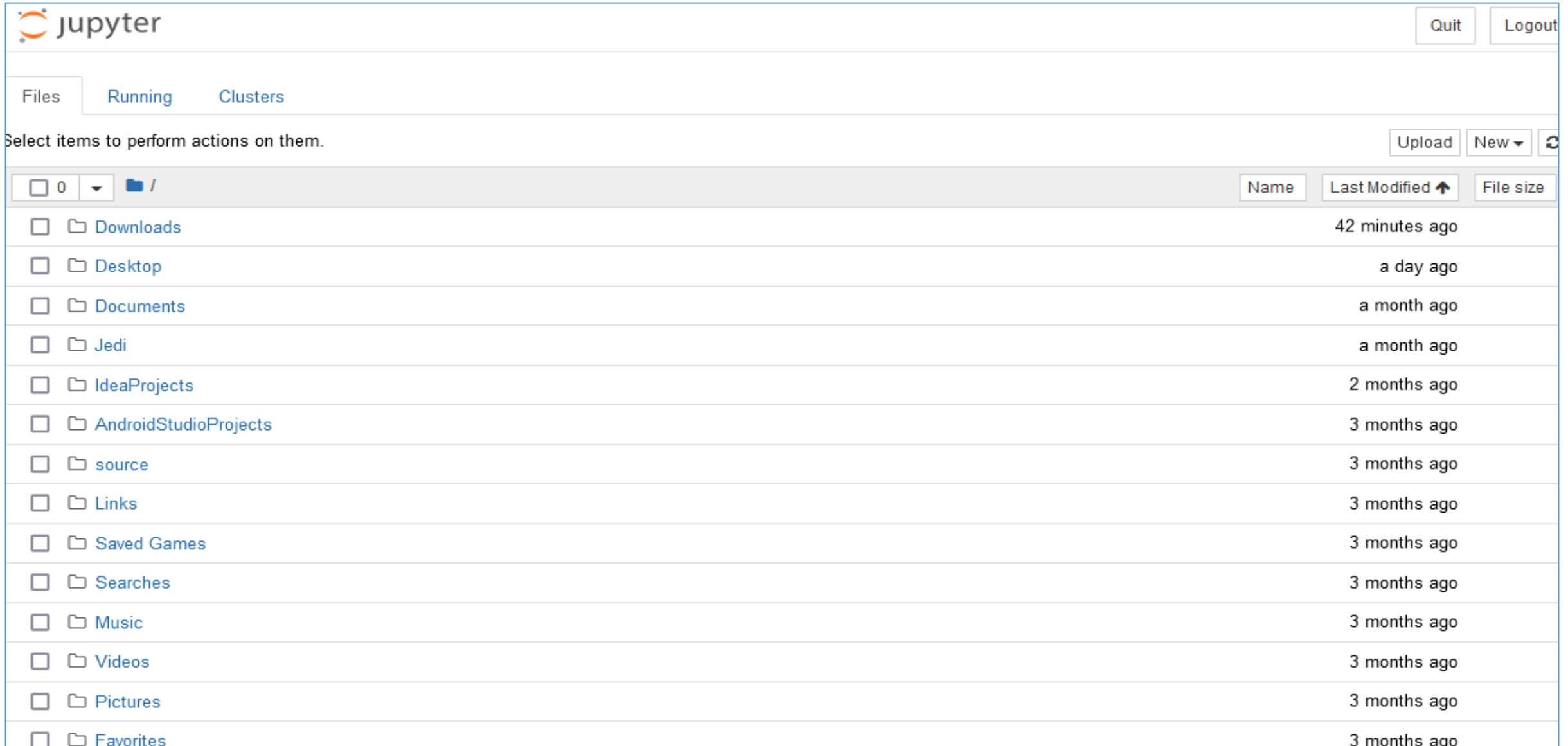
Python dasturlash tilida birinchi dasturni yaratish

Anaconda Navigator dasturi ochilgan joydan Jupyter Notebook dasturini ishga tushiring.



Python dasturlash tilida birinchi dasturni yaratish

Jupyter Notebook dasturi ko‘rinishi. Browserda ochiladi. Pastdagi suratda ko‘rsatilgan.

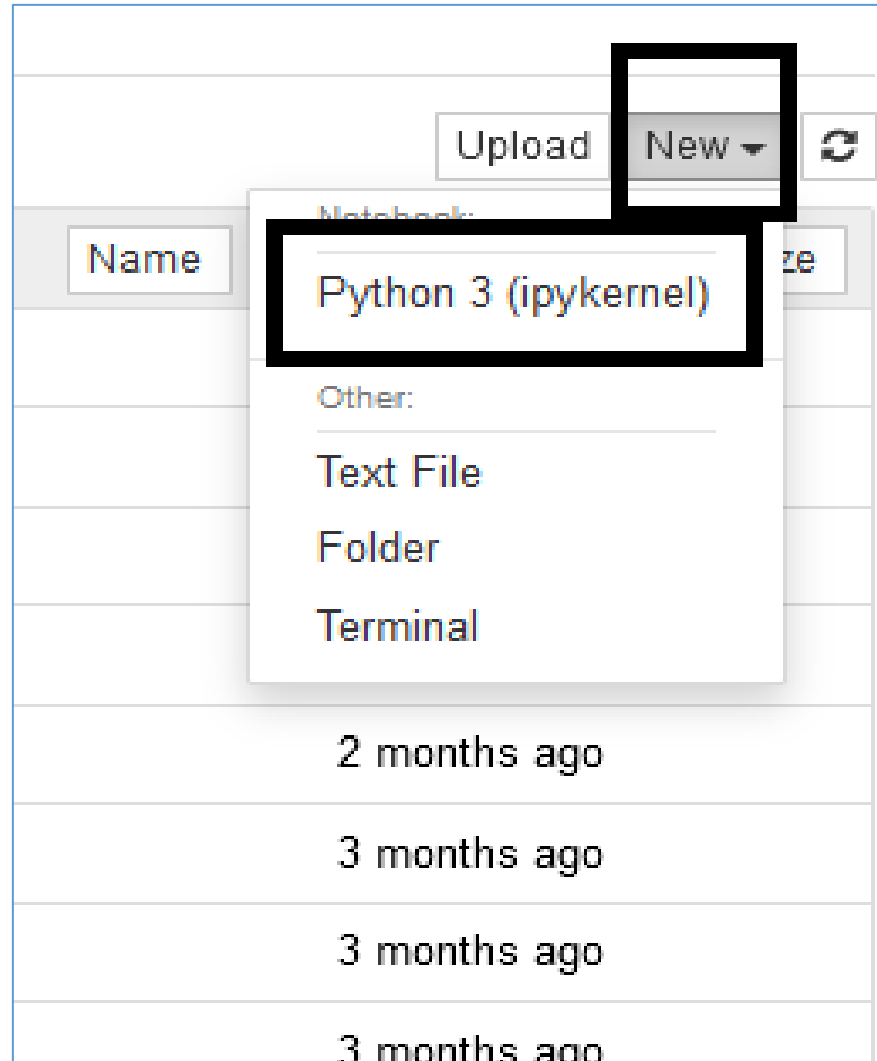


The screenshot displays the Jupyter Notebook interface. At the top left is the Jupyter logo. On the top right, there are 'Quit' and 'Logout' buttons. Below the logo, there are tabs for 'Files', 'Running', and 'Clusters'. A message says 'Select items to perform actions on them.' To the right of this message are 'Upload', 'New', and a refresh icon. The main area shows a file browser with a table of folders. The table has columns for 'Name', 'Last Modified', and 'File size'. The folders listed are: Downloads (42 minutes ago), Desktop (a day ago), Documents (a month ago), Jedi (a month ago), IdeaProjects (2 months ago), AndroidStudioProjects (3 months ago), source (3 months ago), Links (3 months ago), Saved Games (3 months ago), Searches (3 months ago), Music (3 months ago), Videos (3 months ago), Pictures (3 months ago), and Favorites (3 months ago).

<input type="checkbox"/> 0	Name	Last Modified	File size
<input type="checkbox"/>	Downloads	42 minutes ago	
<input type="checkbox"/>	Desktop	a day ago	
<input type="checkbox"/>	Documents	a month ago	
<input type="checkbox"/>	Jedi	a month ago	
<input type="checkbox"/>	IdeaProjects	2 months ago	
<input type="checkbox"/>	AndroidStudioProjects	3 months ago	
<input type="checkbox"/>	source	3 months ago	
<input type="checkbox"/>	Links	3 months ago	
<input type="checkbox"/>	Saved Games	3 months ago	
<input type="checkbox"/>	Searches	3 months ago	
<input type="checkbox"/>	Music	3 months ago	
<input type="checkbox"/>	Videos	3 months ago	
<input type="checkbox"/>	Pictures	3 months ago	
<input type="checkbox"/>	Favorites	3 months ago	

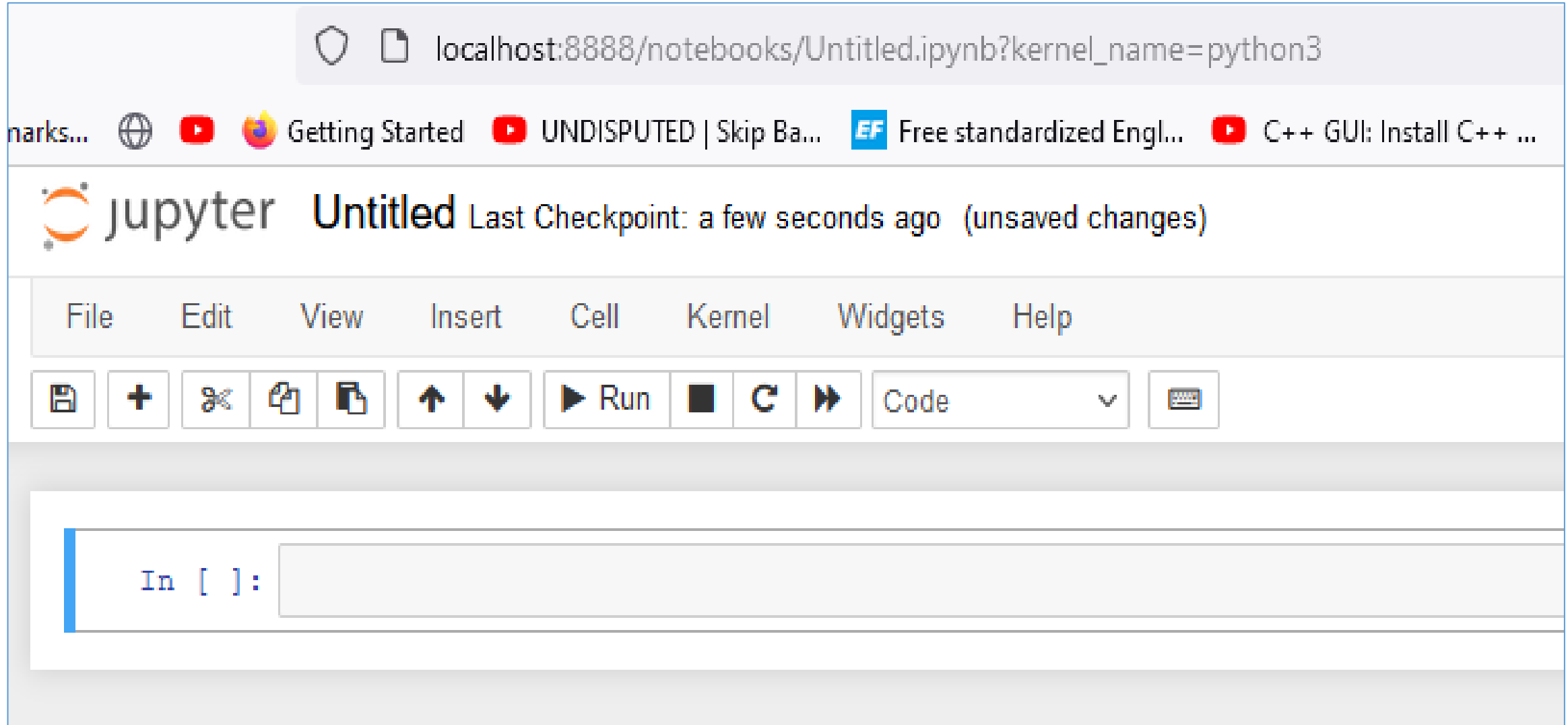
Python dasturlash tilida birinchi dasturni yaratish

- Python faylini ochish uchun o‘ng tomondagi ‘new’ tugamasini bosing, va “Python 3” tugamasini bir marta bosing.



Python dasturlash tilida birinchi dasturni yaratish

Python fayli yaratildi. Birinchi dasturimizni yozishimiz mumkin.



The image shows a web browser window displaying a Jupyter Notebook. The address bar shows the URL: localhost:8888/notebooks/Untitled.ipynb?kernel_name=python3. The browser's tab bar includes several tabs, with the active one being 'Getting Started'. The Jupyter Notebook interface features a header with the 'jupyter' logo, the title 'Untitled', and a status message: 'Last Checkpoint: a few seconds ago (unsaved changes)'. Below the header is a menu bar with options: File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. A toolbar contains icons for file operations (save, new, open, close), navigation (up, down), execution (run, stop, refresh), and a dropdown menu currently set to 'Code'. The main workspace contains a single code cell with the prompt 'In []:' followed by an empty text input field.

Python dasturlash tilida birinchi dasturni yaratish

- Birinchi dasturimizda ekranga ism va familyani chop etishni o'rganamiz. Python dasturida ekranga natijani chop etish uchun **'print()'** funksiyasidan foydalaniladi. Suratda ko'rib turgan birinchi dasturimizda ham

```
print("Ismailov Alisher")
```

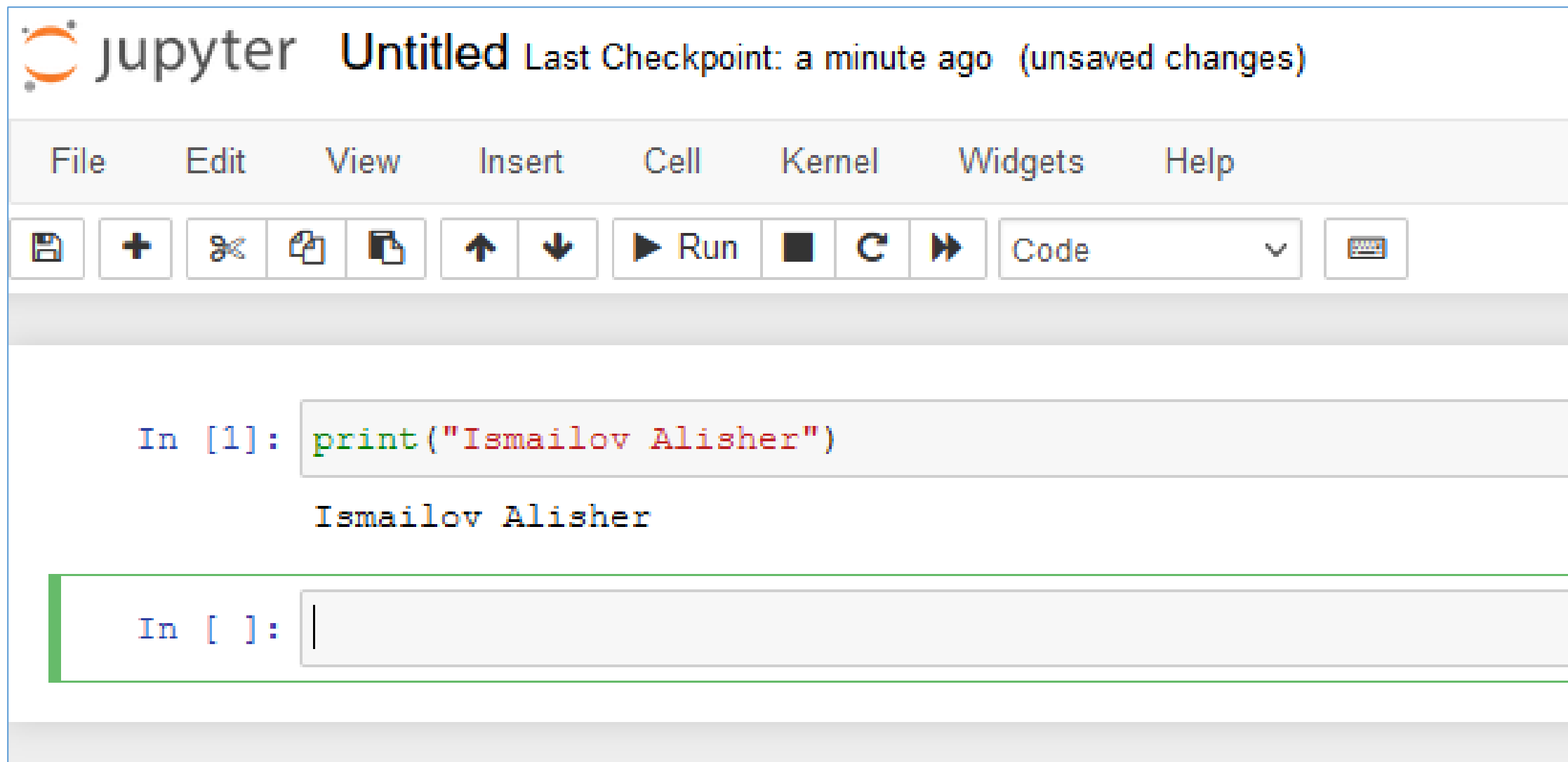
Python dasturlash tilida birinchi dasturni yaratish

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print("Ismailov Alisher")

- print funksiyasidan foydalangan holda ism va familyani ekranga chop etdik. Agar ism familyangiz suratda ko‘rsatilgandek ekranda ko‘ringan bo‘lsa tabriklayman, siz Python dasturlash tilida birinchi dasturingizni yaratdingiz.

Python dasturlash tilida birinchi dasturni yaratish



The image shows a Jupyter Notebook interface. At the top, the Jupyter logo is followed by the text "jupyter Untitled Last Checkpoint: a minute ago (unsaved changes)". Below this is a menu bar with options: File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. Under the menu bar is a toolbar with icons for saving, adding, deleting, copying, pasting, moving up/down, running, stopping, and refreshing, along with a dropdown menu currently set to "Code" and a keyboard icon. The main area contains two code cells. The first cell, labeled "In [1]:", contains the code `print("Ismailov Alisher")` and has the output "Ismailov Alisher" displayed below it. The second cell, labeled "In []:", is currently empty with a cursor at the end of the line.

jupyter Untitled Last Checkpoint: a minute ago (unsaved changes)

File Edit View Insert Cell Kernel Widgets Help

Save + ✂ Copy Paste ↑ ↓ ▶ Run ■ ↻ ⏩ Code ▾ Keyboard

```
In [1]: print("Ismailov Alisher")
```

Ismailov Alisher

```
In [ ]: |
```

Python dasturlash tilida boshlang'ich dasturlar

```
print("Qiziqish: kitob o`qish")
```

Python dasturlash tilida boshlang'ich dasturlar

```
print("Manzil: Andijon")
```

Python dasturlash tilida boshlang'ich dasturlar

```
print("Yosh: 32")
```

Foydalanilgan adabiyotlar

1. Mastering Object-Oriented Python: Build powerful applications with reusable code using OOP design patterns and Python 3.7, 2nd Edition, Steven F. Lott, Packt Publishing (June 14, 2019)
2. Learning Python, 5th Edition Fifth Edition, Mark Lutz , O'Reilly Media, June 12, 2013
3. Python Programming for Beginners: The Ultimate Guide for Beginners to Learn Python Programming: Crash Course on Python Programming for Beginners, AMZ Publishing, Independently published (July 13, 2021)
4. <https://www.python.org/>
5. <https://www.w3schools.com/>
6. <https://www.codecademy.com/catalog/language/python>
7. <https://realpython.com/>
8. <https://www.anaconda.com/>

**E'tiboringiz
uchun rahmat!**