Day 03. Async/Await

# Чек-листы

## Общие

1. Выполнены ли общие требования?
2. Проверяемый может объяснить работу программы?
3. Названы ли переменные осмысленно и функционально?
4. Отсутствуют ли в коде хардкод и “магические числа”?
5. Соответствует ли код [C# Coding Conventions](https://docs.microsoft.com/ru-ru/dotnet/csharp/programming-guide/inside-a-program/coding-conventions)?
6. Программа запускается?
7. Соответствует ли структура проекта указанной в задании?

d03/

d03.Nasa/

Apod/

Models/

MediaOfToday.cs

ApodClient.cs

NeoWs/

Models/

AsteroidInfo.cs

AsteroidLookup.cs

AsteroidRequest.cs

NeoWsClient.cs

d03.Host/

Program.cs

appsettings.json

1. В проекте *d03.Nasa* не должно быть ссылок на библиотеки Microsoft.Extensions.Configuration и Microsoft.Extensions.Configuration.Json. Так ли это?
2. Проект *d03.Host* не должен использовать библиотеки System.Net.Http и System.Text.Json. Так ли это?
3. Является ли метод Main в Program.cs async?
4. Являются ли методы, конструктор и поля абстрактного класс ApiClientBase protected?

## Задание 00

1. Программа считывает ключ API из appsettings.json?
2. Реализует ли ApodClient интерфейс INasaClient<int, Task<MediaOfToday[]>>?
3. Реализует ли ApodClient абстрактный класс ApiClientBase?
4. Содержит ли класс, представляющий информацию о медиа дня, следующие поля: автора (Copyright), дату (Date), описание (Explanation), заголовок (Title) , а также ссылку (*Url*)?
5. Выдает ли корректный ответ программа на следующих входных данных?

**{**

**"ApiKey": "API\_KEY"**

**}**

$dotnet run apod 5

19/01/2018

'Clouds in the LMC' by Josep Drudis

An alluring sight in southern skies, the Large Magellanic Cloud (LMC) is seen in this deep and detailed telescopic mosaic. Recorded with broadband and narrowband filters, the scene spans some 5 degrees or 10 full moons. The narrowba

nd filters are designed to transmit only light emitted by hydrogen, and oxygen atoms. Ionized by energetic starlight, the atoms emit their characteristic light as electrons are recaptured and the atoms transition to a lower energy s

tate. As a result, in this image the LMC seems covered with its own clouds of ionized gas surrounding its massive, young stars. Sculpted by the strong stellar winds and ultraviolet radiation, the glowing clouds, dominated by emissio

n from hydrogen, are known as H II (ionized hydrogen) regions. Itself composed of many overlapping H II regions, the Tarantula Nebula is the large star forming region at the left. The largest satellite of our Milky Way Galaxy, the L

MC is about 15,000 light-years across and lies a mere 160,000 light-years away toward the constellation Dorado.

https://apod.nasa.gov/apod/image/1801/LMC\_RGBNB-Don-Josep5-Cc1024.jpg

04/04/2008

'Layers in Aureum Chaos'

At first glance these undulating shapes in shades of blue might look like waves on an ocean. Seen here in a false-color image from the Mars Reconnaissance Orbiter's HiRISE camera, they are actually layered rock outcrops found in Aur

eum Chaos. The larger Aureum Chaos region is a chaotic jumble of eroded terrain in the eastern part of Mars' immense canyon Valles Marineris. Distinct layers composing these outcrops could have been laid down by dust or volcanic ash

settling from the atmosphere, sand carried by martian winds, or sediments deposited on the floor of an ancient lake. This close-up view of the otherwise red planet spans about 4 kilometers, a distance you might walk over flat groun

d in less than an hour. digg\_url = 'http://apod.nasa.gov/apod/ap080404.html'; digg\_skin = 'compact';

https://apod.nasa.gov/apod/image/0804/PSP\_007006\_1765\_e800.jpg

31/10/2010

'Halloween and the Ghost Head Nebula'

Halloween's origin is ancient and astronomical. Since the fifth century BC, Halloween has been celebrated as a cross-quarter day, a day halfway between an equinox (equal day / equal night) and a solstice (minimum day / maximum nigh

t in the northern hemisphere). With a modern calendar, however, the real cross-quarter day will occur next week. Another cross-quarter day is Groundhog's Day. Halloween's modern celebration retains historic roots in dressing to sc

are away the spirits of the dead. Perhaps a fitting tribute to this ancient holiday is this view of the Ghost Head Nebula taken with the Hubble Space Telescope. Similar to the icon of a fictional ghost, NGC 2080 is actually a star

forming region in the Large Magellanic Cloud, a satellite galaxy of our own Milky Way Galaxy. The Ghost Head Nebula spans about 50 light-years and is shown in representative colors.

https://apod.nasa.gov/apod/image/1010/ngc2080\_hst.jpg

15/01/1997

'Black Holes Signature From Advective Disks

Research Credit:'

star. perhaps brighter than allowable from an ADAF onto a neutronservationsws (ADAFs).

https://apod.nasa.gov/apod/image/9701/xraybin\_heasarc.gif

13/02/2007

'Vela Supernova Remnant in Visible Light'

The explosion is over but the consequences continue. About eleven thousand years ago a star in the constellation of Vela could be seen to explode, creating a strange point of light briefly visible to humans living near the beginnin

g of recorded history. The outer layers of the star crashed into the interstellar medium, driving a shock wave that is still visible today. A roughly spherical, expanding shock wave is visible in X-rays. The above image captures m

uch of that filamentary and gigantic shock in visible light, spanning almost 100 light years and appearing twenty times the diameter of the full moon. As gas flies away from the detonated star, it decays and reacts with the interste

llar medium, producing light in many different colors and energy bands. Remaining at the center of the Vela Supernova Remnant is a pulsar, a star as dense as nuclear matter that completely rotates more than ten times in a single sec

ond.

https://apod.nasa.gov/apod/image/0702/vela\_skyfactory.jpg

1. Выдает ли корректный ответ программа на следующих входных данных?

**{**

**"ApiKey": ""**

**}**

$ dotnet run apod 5

GET “https://api.nasa.gov/neo/rest/v1/feed?start\_date=2015-09-07&end\_date=2015-09-08&api\_key=” returned Forbidden:

{

"error": {

"code": "API\_KEY\_MISSING",

"message": "No api\_key was supplied. Get one at https://api.nasa.gov:443"

}

}

## Задание 01

1. Программа считывает ключ API и даты старта и окончания выборки из appsettings.json?
2. Реализует ли NeoWsClient интерфейс INasaClient<AsteroidRequest, Task<AsteroidLookup[]>>?
3. Реализует ли NeoWsClient абстрактный класс ApiClientBase?
4. Содержит ли класс, представляющий информацию для запроса AsteroidRequest, следующие поля: дату начала выборки (StartDate), дату окончания выборки (EndDate), количество результатов (ResultCount)?
5. Содержит ли класс, представляющий информацию для вывода AsteroidLookup, следующие поля: идентификатор, название, ссылку, флаг потенциальной опасности, тип и описание орбитального класса?
6. Используются ли для операций с коллекцией полученных из API данных не циклы, а расширения LINQ: Select/SelectMany, Where, OrderBy/OrderByDescending, First/Last/Single, FirstOrDefault/LastOrDefault/SingleOrDefault или Take/Skip?
7. Выдает ли корректный ответ программа на следующих входных данных?

**{**

**"ApiKey": "API\_KEY",**

**"NeoWs": {**

**"StartDate": "2015-09-07",**

**"EndDate": "2015-09-08"**

**}**

**}**

$ dotnet run neows 5

- Asteroid (2015 RG2), SPK-ID: 3726788

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3726788.

- Asteroid (2015 RC), SPK-ID: 3726710

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3726710.

- Asteroid (2015 RO36), SPK-ID: 3727181

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727181.

- Asteroid (2015 RL35), SPK-ID: 3727036

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727036.

- Asteroid (2015 RY83), SPK-ID: 3727663

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727663.

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**{**

**"ApiKey": "",**

**"NeoWs": {**

**"StartDate": "2015-09-07",**

**"EndDate": "2015-09-08"**

**}**

**}**

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GET “https://api.nasa.gov/neo/rest/v1/feed?start\_date=2015-09-07&end\_date=2015-09-08&api\_key=” returned Forbidden:

{

"error": {

"code": "API\_KEY\_MISSING",

"message": "No api\_key was supplied. Get one at https://api.nasa.gov:443"

}

}

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**"NeoWs": {**

**"StartDate": "2015-09-07",**

**"EndDate": "2015-09-08"**

**}**

**}**

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- Asteroid (2015 RY83), SPK-ID: 3727663

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727663.

- Asteroid (2015 TX237), SPK-ID: 3730577

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3730577.

- Asteroid (2015 RH36), SPK-ID: 3727179

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727179.

- Asteroid (2015 UG), SPK-ID: 3731587

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3731587.

- Asteroid (2016 RN41), SPK-ID: 3759690

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3759690.

- Asteroid (2015 RN83), SPK-ID: 3727639

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727639.

- Asteroid (2016 RT), SPK-ID: 3758838

Classification: ATE, Near-Earth asteroid orbits similar to that of 2062 Aten.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3758838.

- Asteroid (2016 RU33), SPK-ID: 3759353

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3759353.

- Asteroid (2008 QV11), SPK-ID: 3426410

Classification: ATE, Near-Earth asteroid orbits similar to that of 2062 Aten.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3426410.

- Asteroid (2016 EK158), SPK-ID: 3747356

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3747356.

- Asteroid (2015 RX83), SPK-ID: 3727662

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3727662.

- Asteroid 465633 (2009 JR5), SPK-ID: 2465633IS POTENTIALLY HAZARDOUS!

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=2465633.

- Asteroid (2015 FC35), SPK-ID: 3713989

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3713989.

- Asteroid (2019 QK4), SPK-ID: 3843641

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3843641.

- Asteroid (2020 BY), SPK-ID: 3986741

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3986741.

- Asteroid (2018 RZ2), SPK-ID: 3827337

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3827337.

- Asteroid (2020 WZ), SPK-ID: 54088823

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=54088823.

- Asteroid (2010 XT10), SPK-ID: 3553060

Classification: APO, Near-Earth asteroid orbits which cross the Earth's orbit similar to that of 1862 Apollo.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3553060.

- Asteroid 440012 (2002 LE27), SPK-ID: 2440012

Classification: AMO, Near-Earth asteroid orbits similar to that of 1221 Amor.

Url: http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=2440012.