

« (. .) . .»

« ()
8
«28» _ _2021__ . «__» _____ 20__ .

« . **01.03.** »

09.02.07 «

»

«

• » _____ • _____

,

09.02.07 «

»

СОДЕРЖАНИЕ

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.....	5
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01.

02.

03.

04.

05.

06.

07.

08.

09.

10.

1.2.

1.6.

« (, . .)- » , « » .
 » , « 09.02.07 « »
 »

8GB

: Core i5,
 : Android Studio; Visual Studio.

2 - 5

Структура лабораторной работы

1

:

Android Studio

Android Studio

1.

2. 19.201-78 « », 2020. - 384 . ISBN 978-5-4468-9443-7

3. <https://nationalteam.worldskills.ru/skills/razrabotka-mobilnogo-prilozheniya-v-android-studio/>

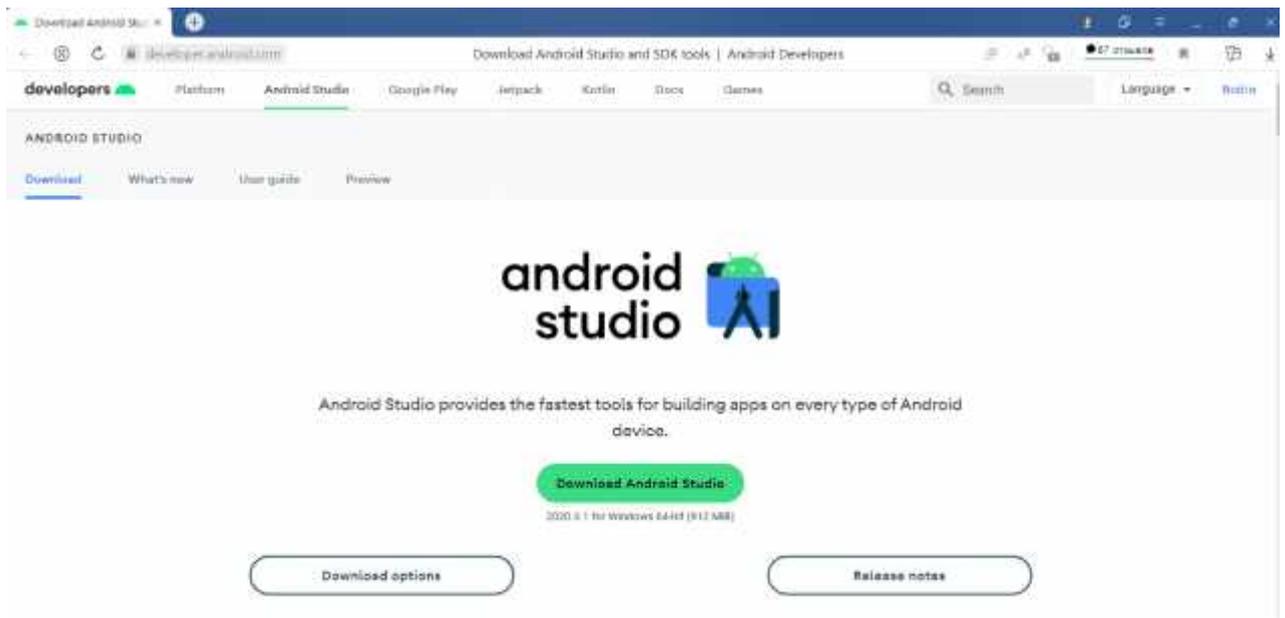
Android.

Android Studio,

Android.

Lkz

: <https://developer.android.com/studio>:



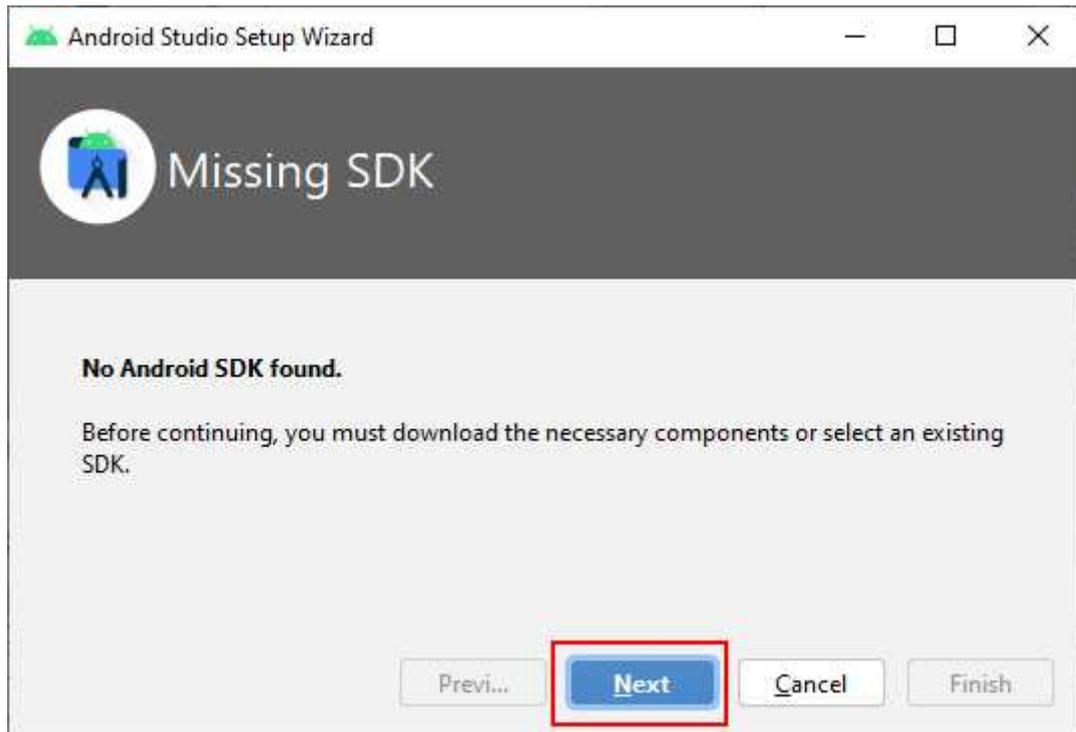
Android Studio

Android SDK.

Android SDK

Android Studio

Android SDK



Android SDK

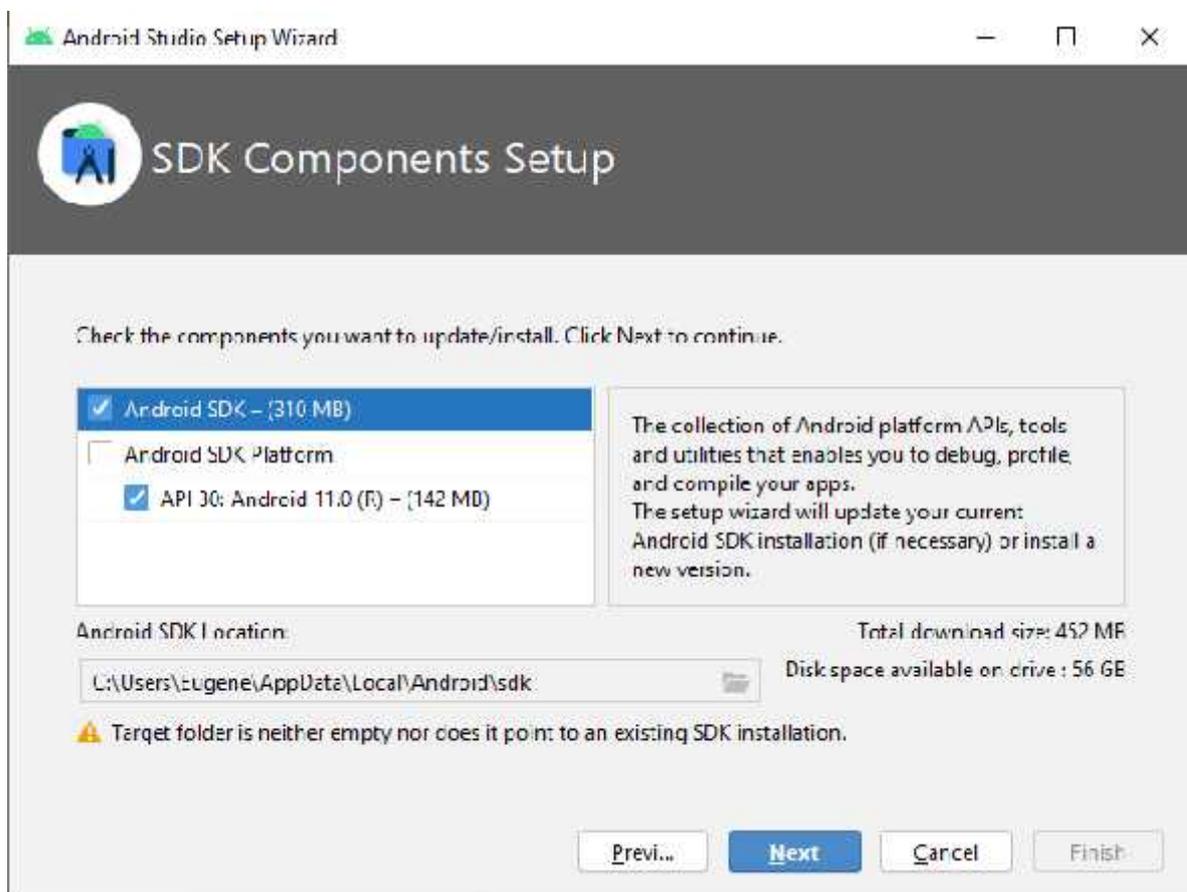
Android Studio.

Next.

Android SDK

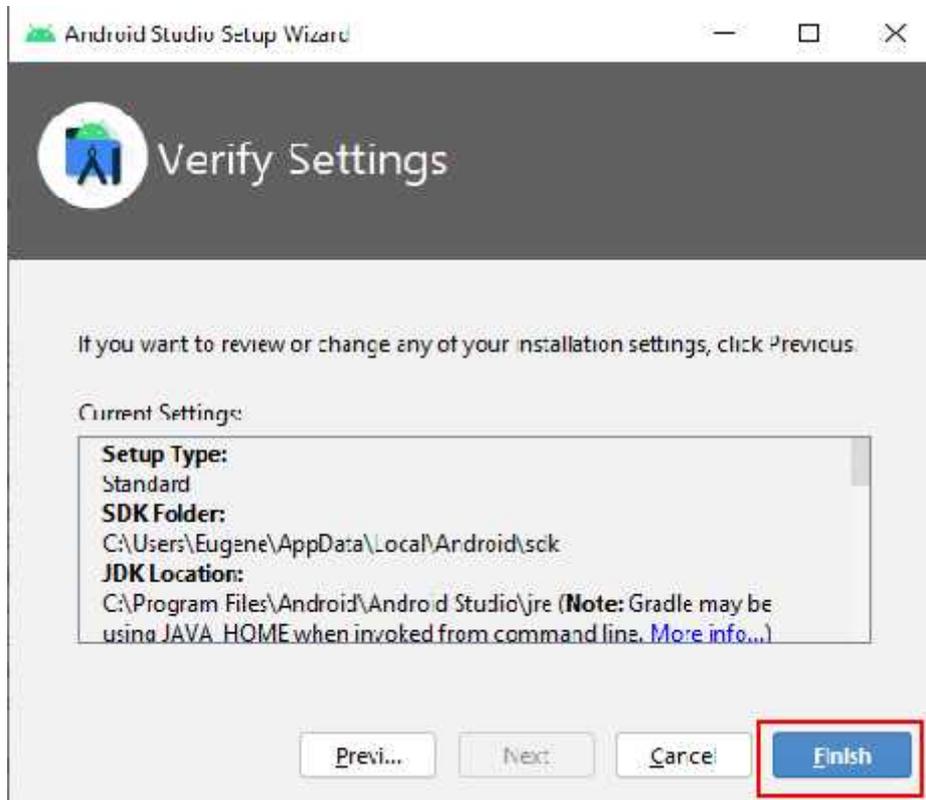
API (

Android 11):

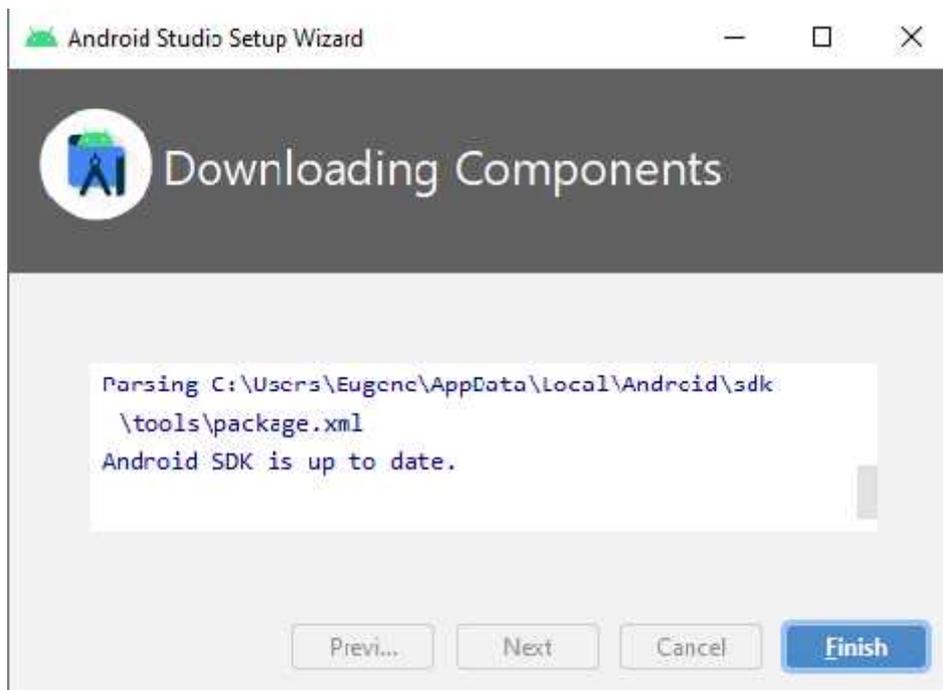


Android SDK,

Next,



Finish,

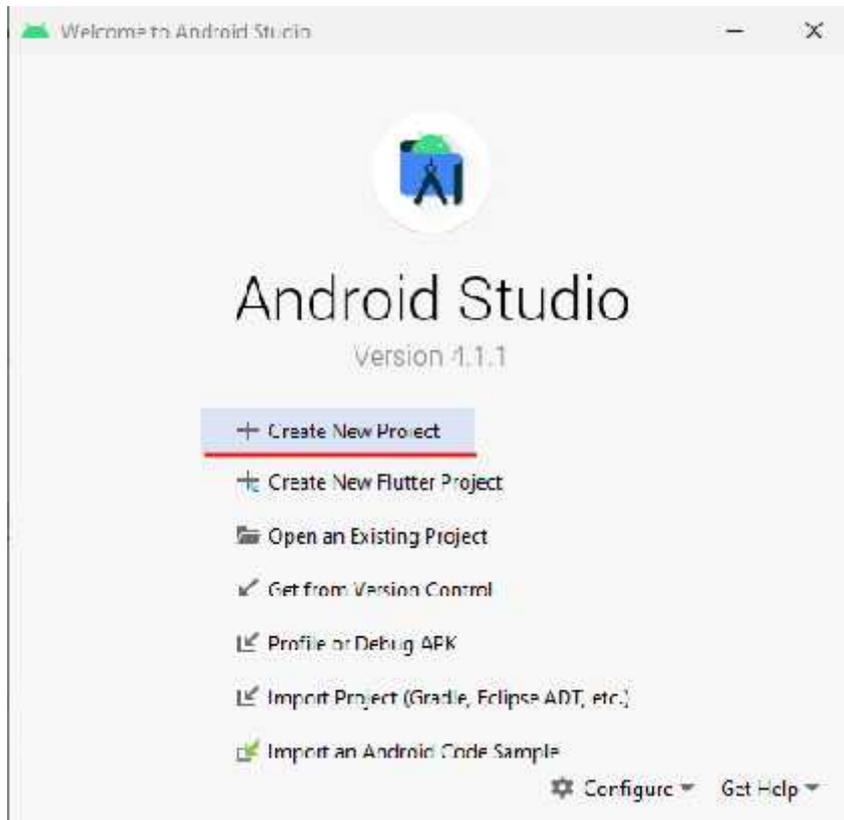


Finish.

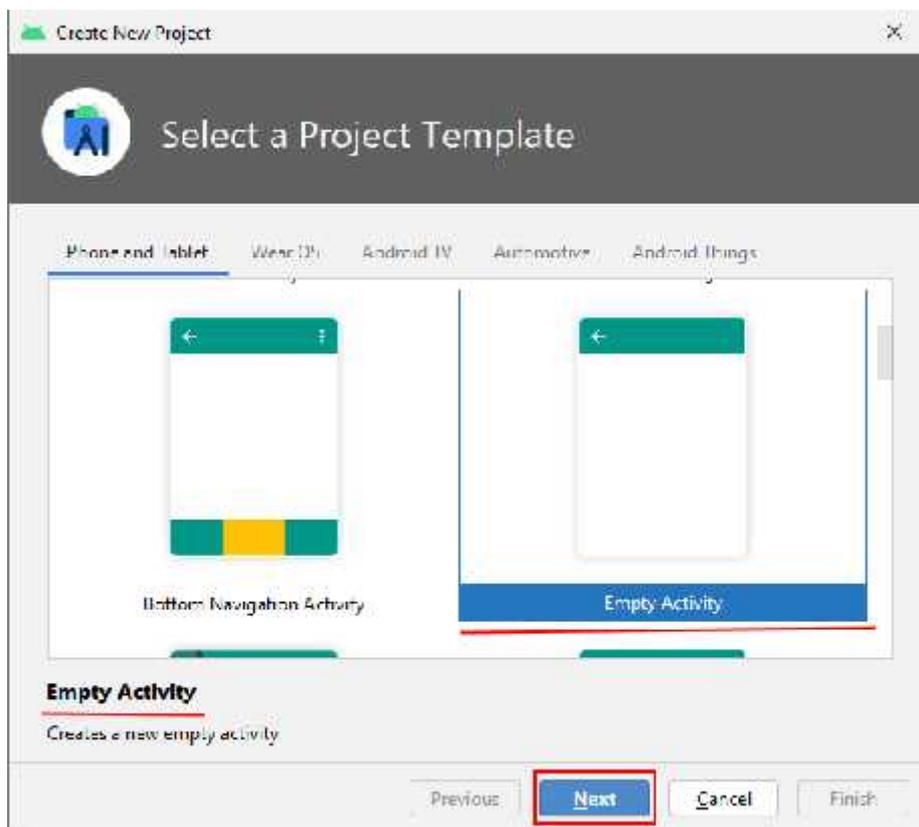
Android.
Project:

Android Studio

Create New



Android Studio

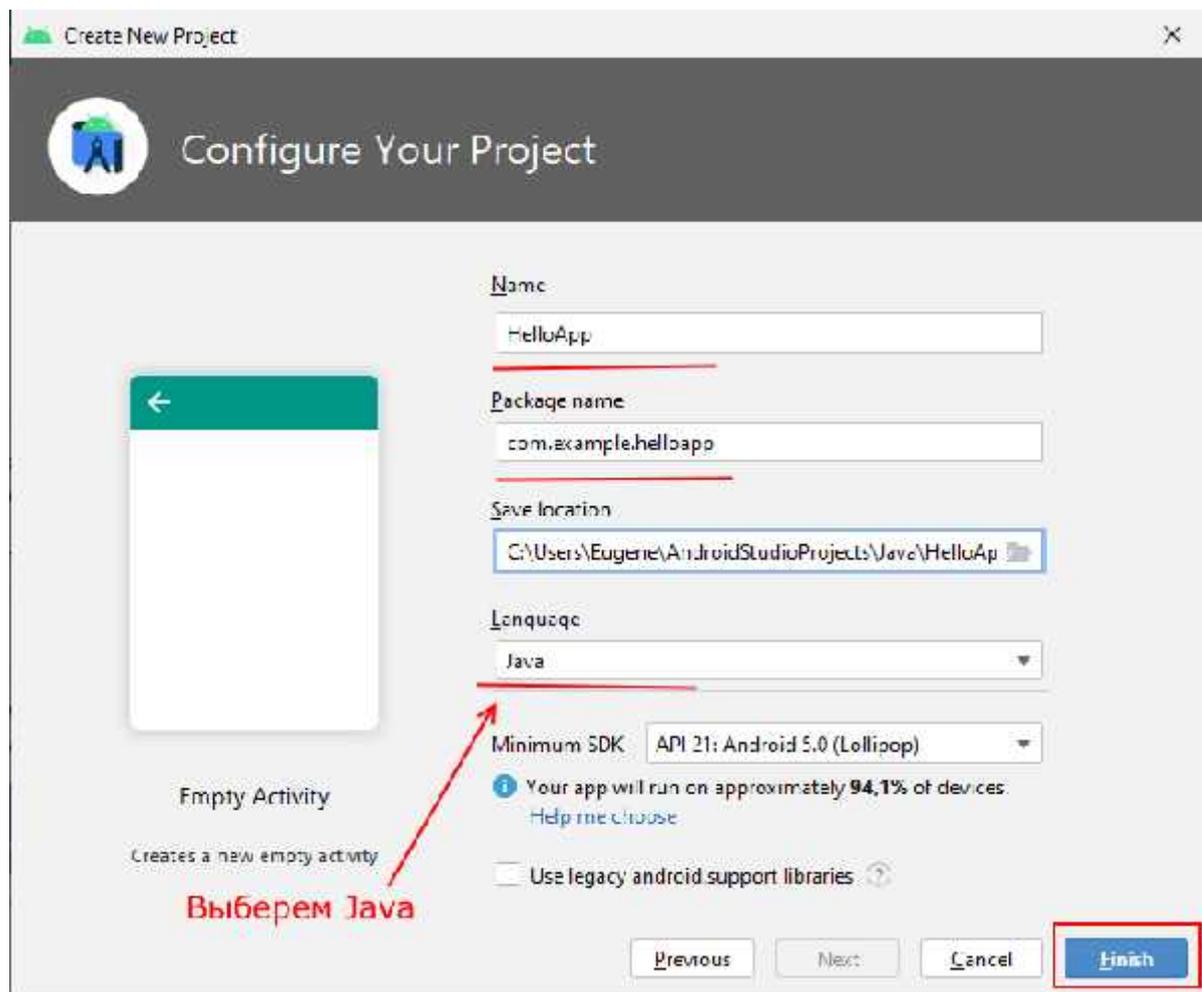


Android Studio

Basic Activity Empty Activity.

Empty Activity (

) Next.



Name

HelloApp

Package Name

com.example.helloapp.

Save Location

Language

Java (

Kotlin)

Minimum SDK

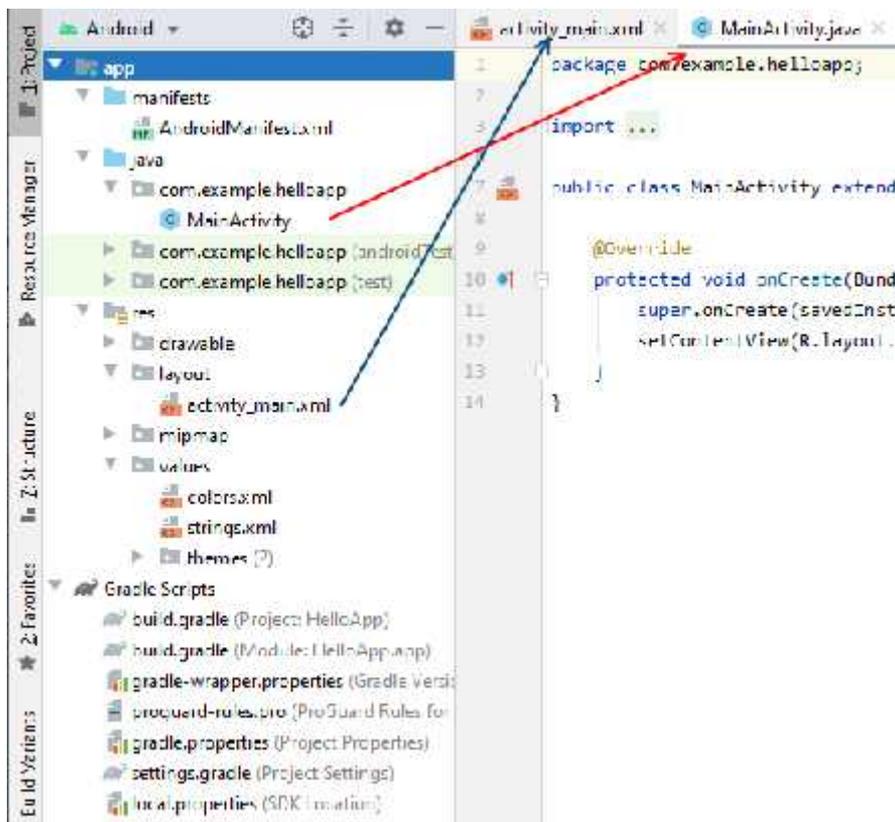
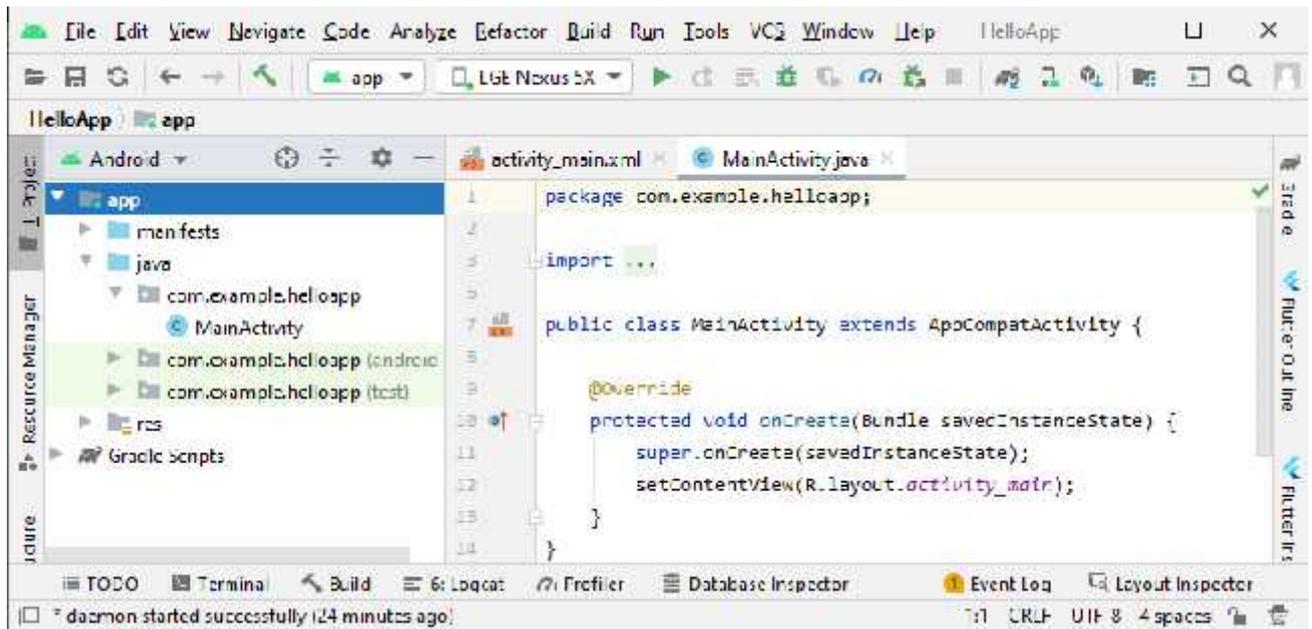
SDK.

- API 21: Android 5.0 (Lollipop),

Android 5.0, 94%

SDK,

Finish, Android Studio



Android

, - app.

• manifests:

AndroidManifest.xml,

• java:

java,

com.example.helloapp (

)

MainActivity.java

Java,

MainActivity,

• res:

○ drawable

○ layout

activity_main.xml,

MainActivity xml

○ mipmap

○ values

xml-

▪ colors.xml

▪ strings.xml

▪ themes

()

Gradle Scripts

MainActivity.java,

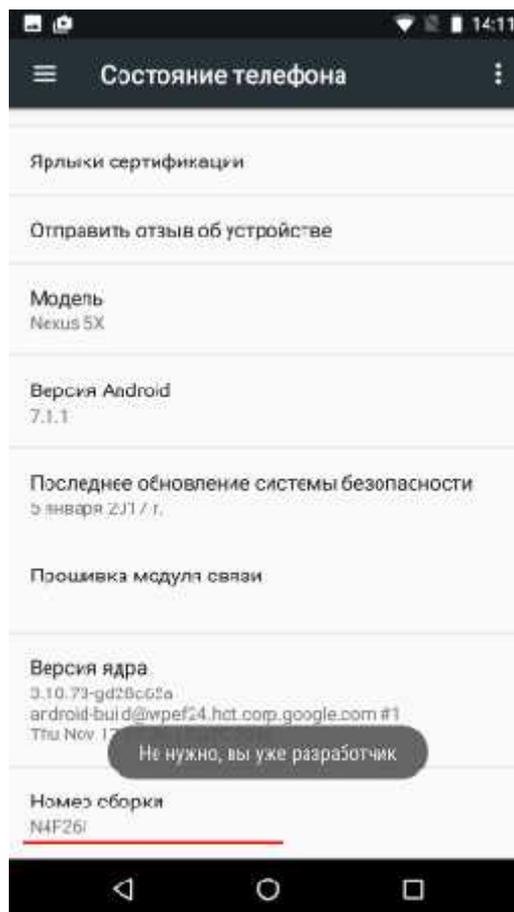
Android

Studio

activity_main.xml,

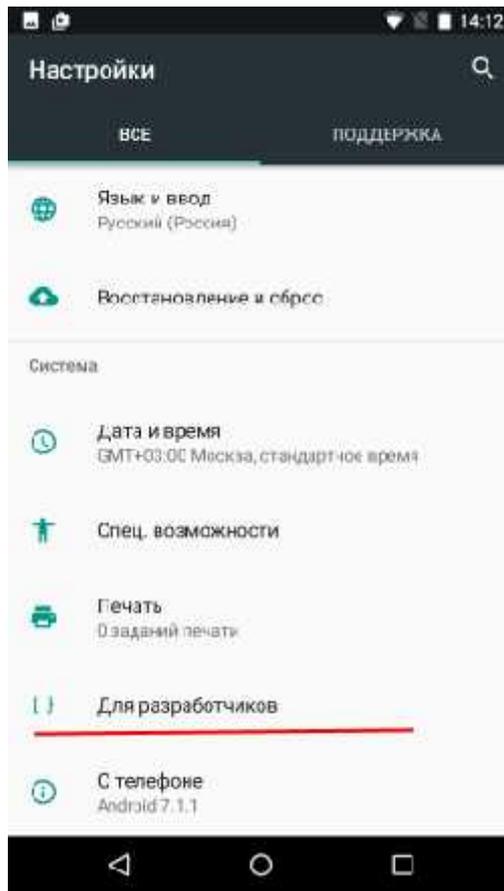
"Hello world!".

Settings > About phone (>) (Android 8 Settings > System > About phone (> >)) Build Number ().

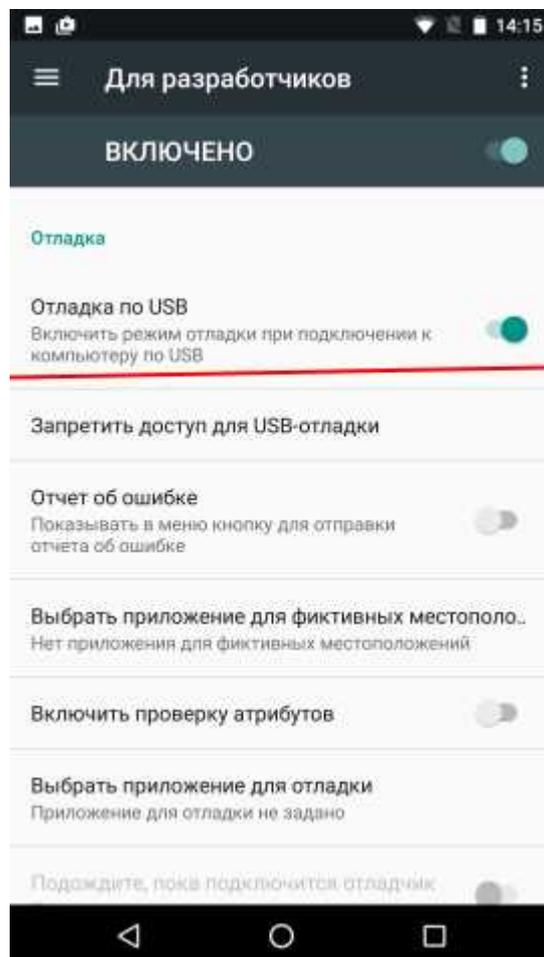


Developer options

().

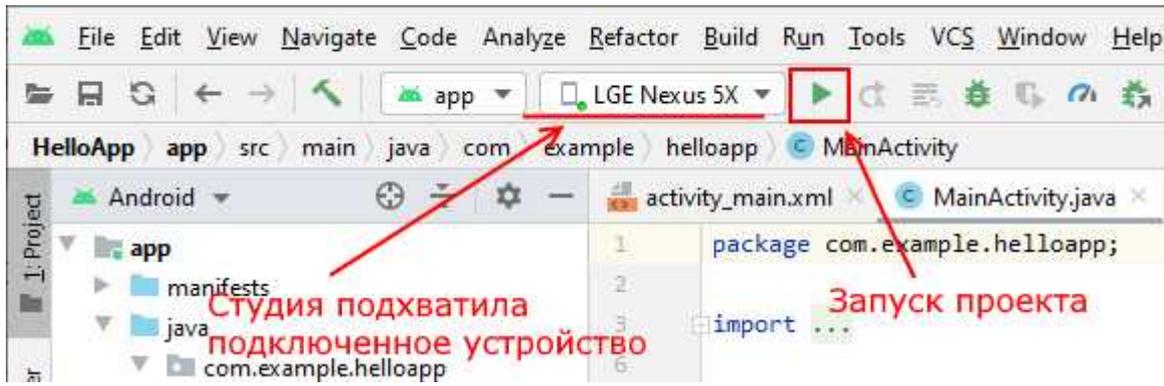


USB:



Android (

)



OK.



Hello World!



Phonegap

_____ :

Phonegap

_____ -

_____ -

1. _____ :
2. _____ « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://nationalteam.worldskills.ru/skills/razrabotka-mobilnogo-prilozheniya-v-android-studio/>

Android

PhoneGap

1. _____ Android
2. _____ Node.js
3. _____ npm PhoneGap.
4. _____ PhoneGap PhoneGap.
5. _____ PhoneGap Android.
6. _____ ADT

1. _____ Android: <http://developer.android.com/sdk/index.html> ADT

PATH:

- A、 {ADT_HOME}\sdk\platform-tools
- B、 {ADT_HOME}\sdk\tools

2. _____ Android _____ Node.js: _____ Node.js. _____ Windows.
3. _____ PhoneGap: _____ :

npm install -g phonegap

PHONEGAP

4. _____ phonegap: _____ :

phonegap create my-app

my-app —

5.

Android:

```
cd my-app  
phonegap build android
```

6.

eclipse
Project

ADT,

ADT).

ADT:

File-New-Project,

Android-> Android

«New Project»

Next

my-app / platform / android,

Android,

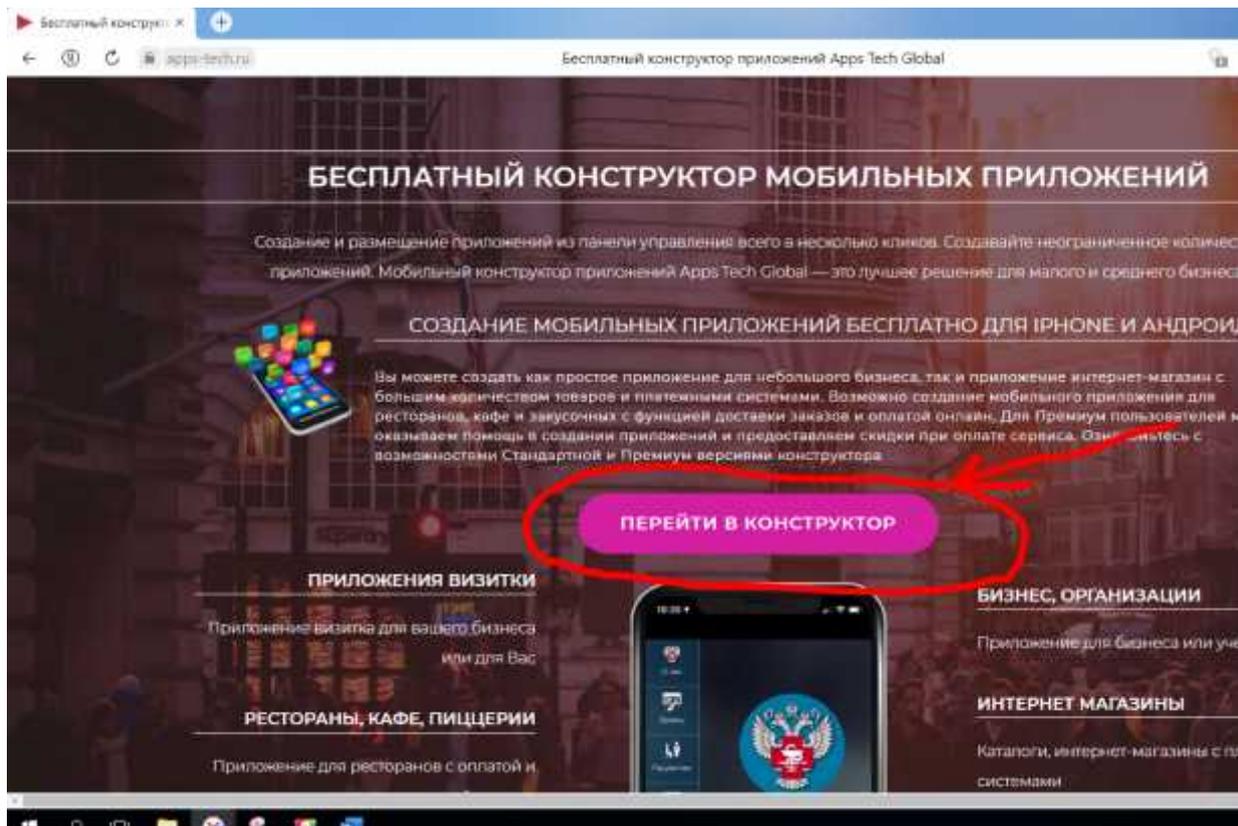
_____ :

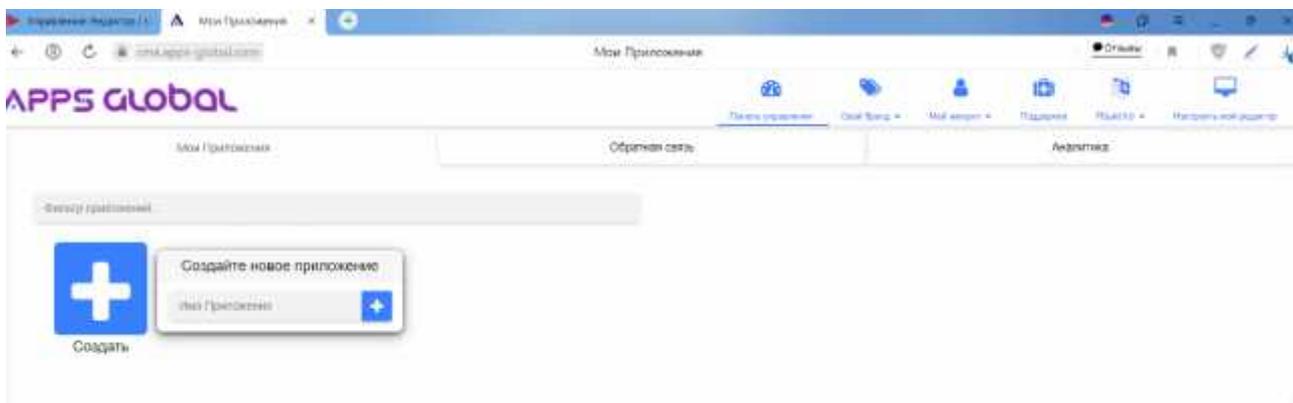
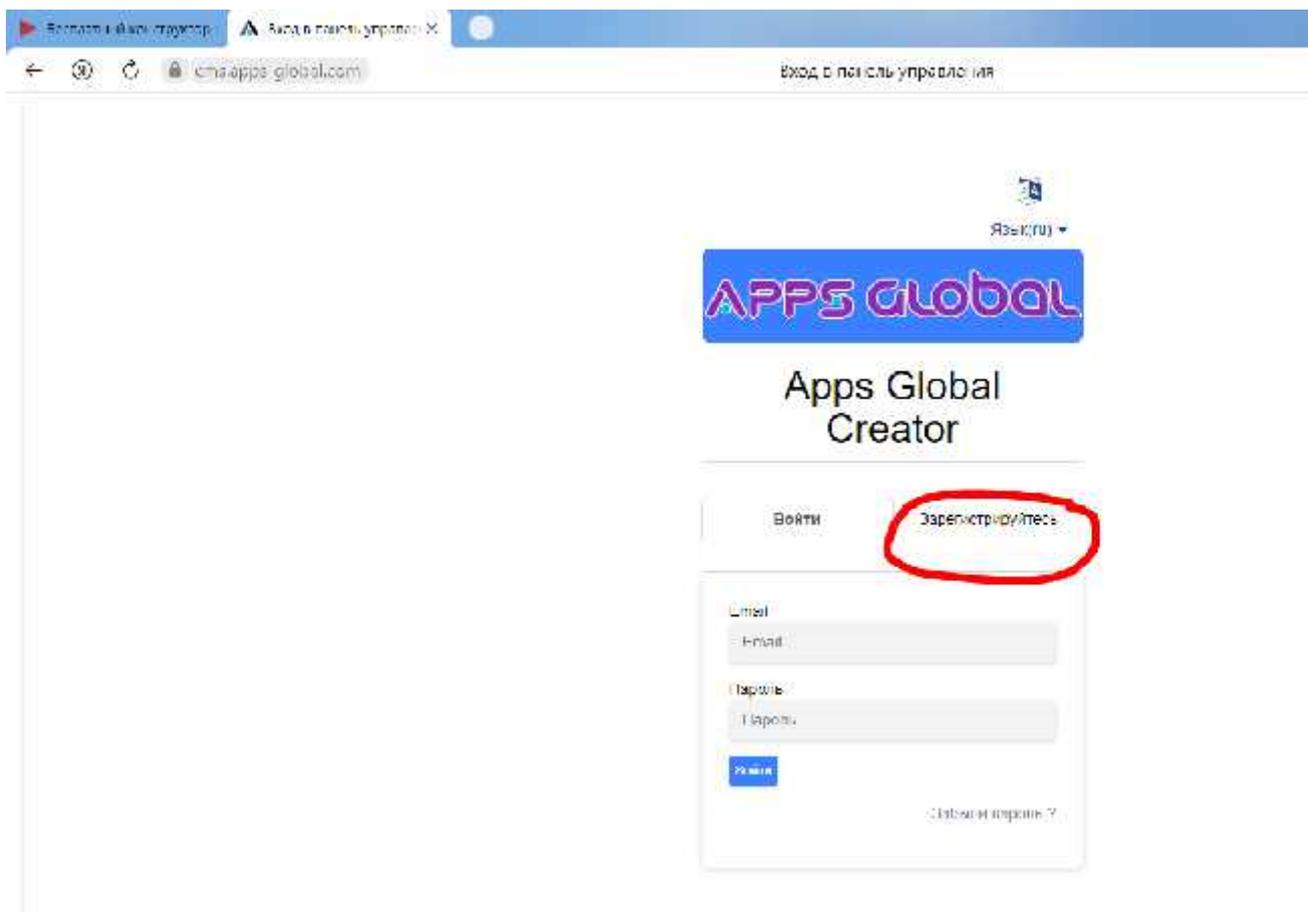
Apps Tech Global -

1. _____ : _____ / _____ - 4- _____ : _____
2. _____ 19.201-78 « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://apps-tech.ru/>

Apps Tech

Global: <https://apps-tech.ru/>





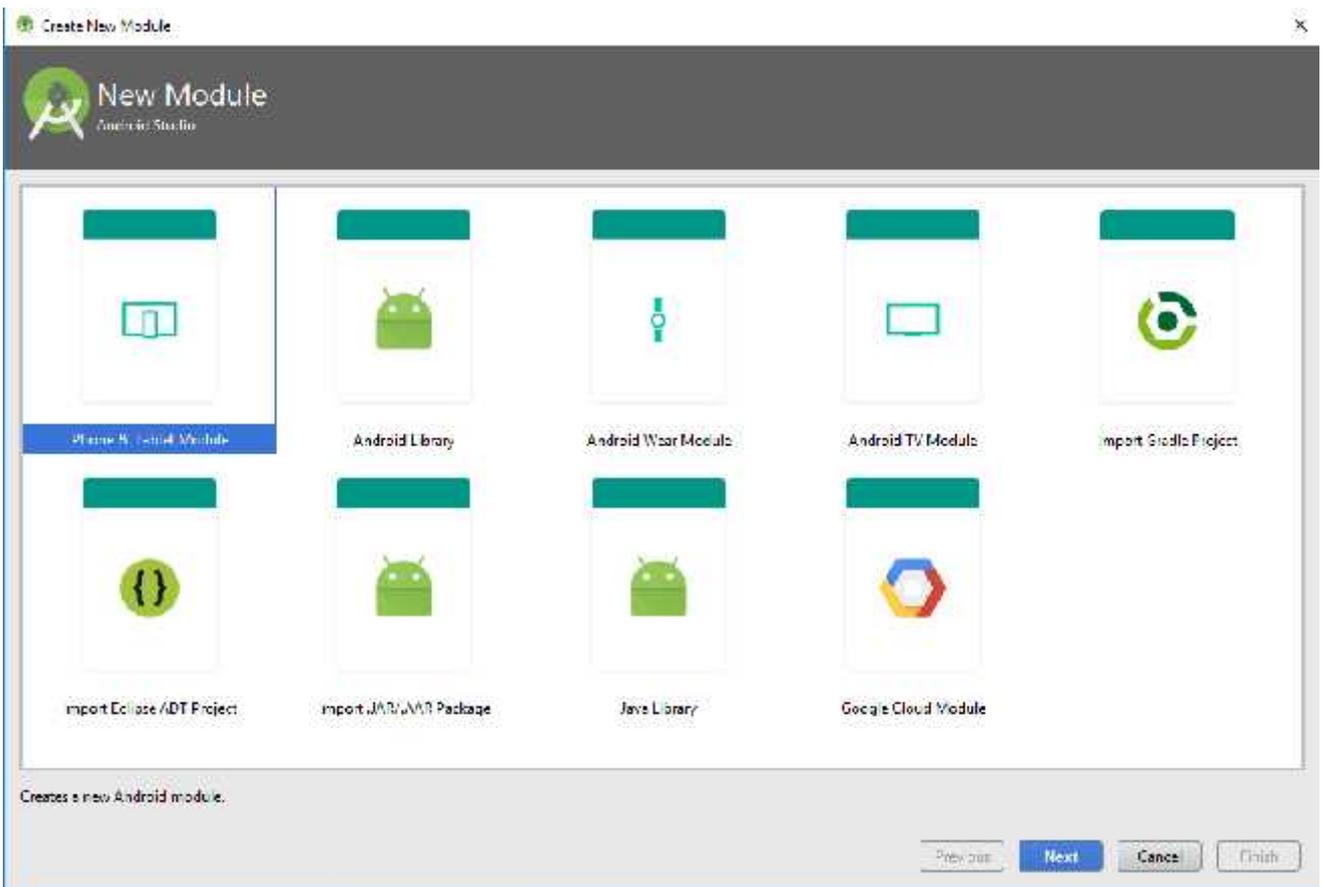
: <https://apps-tech.ru/upravlenie-prilozheniem/>

Android

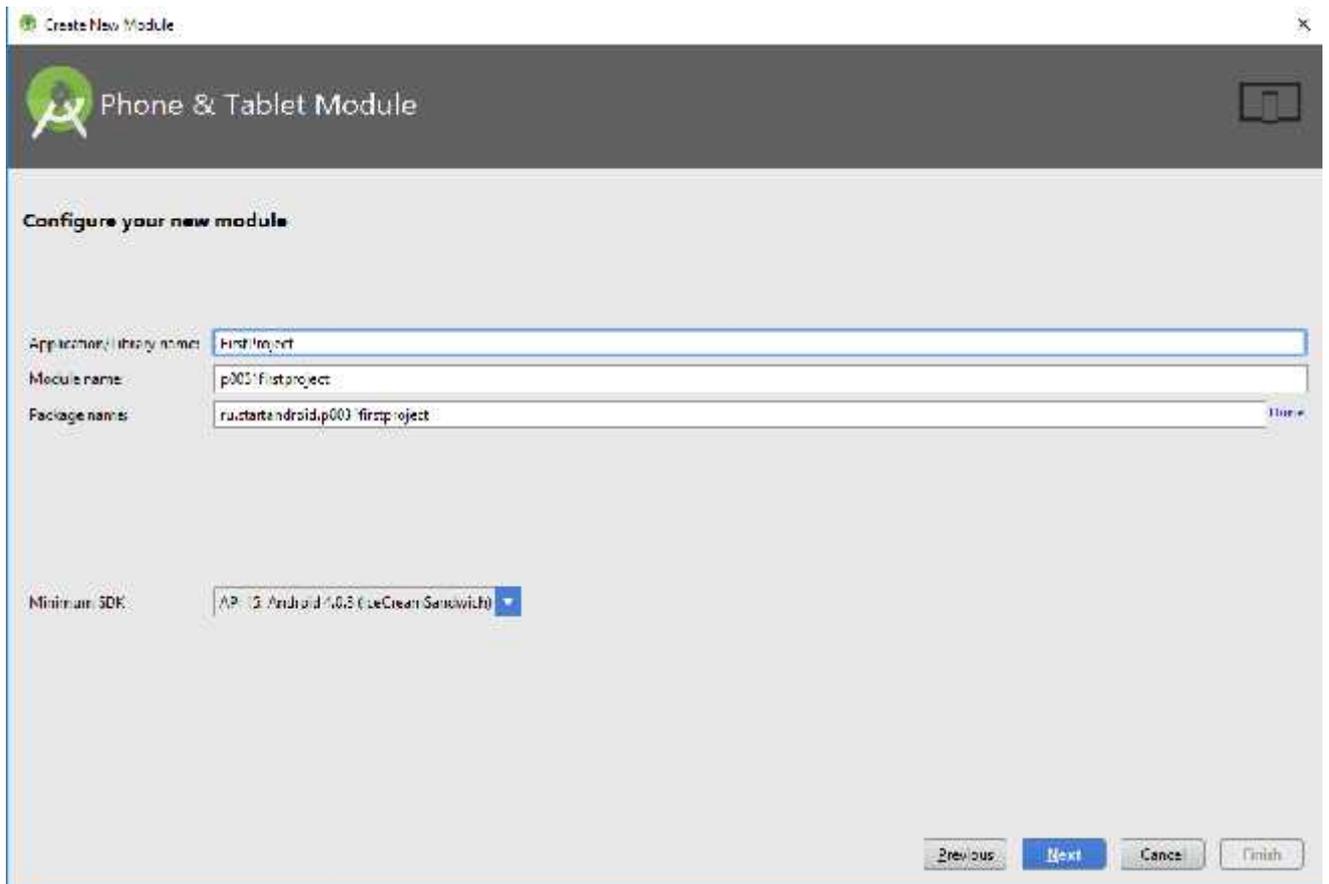
Studio

1. _____
2. 19.201-78 « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://metanit.com/java/android/>

– File -> New -> New module
Phone and Tablet Application



Next



Application/Library name –

FirstProject.

Module name –

app.
: p< (000)>< (0)>.

- FirstProject.

: p0031firstproject.

Package name –

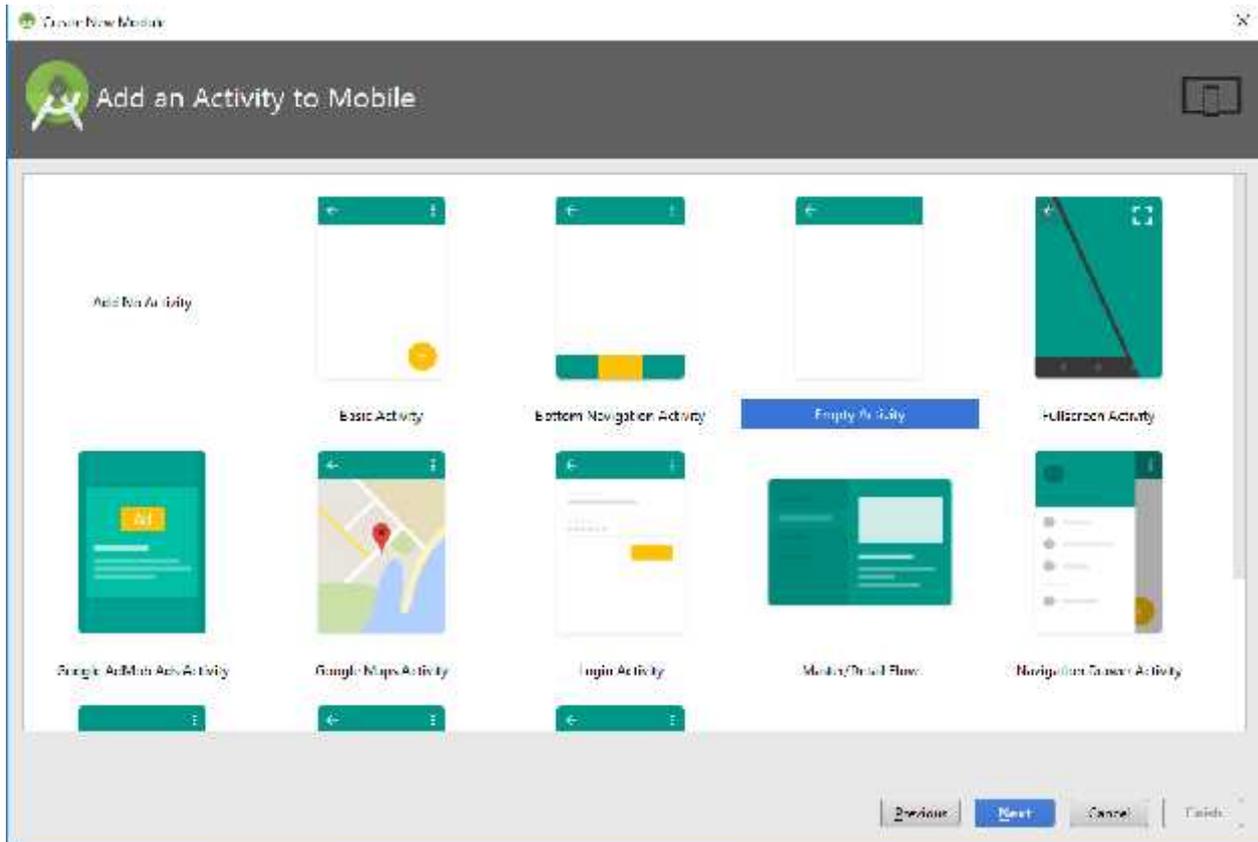
ru.startandroid

edit

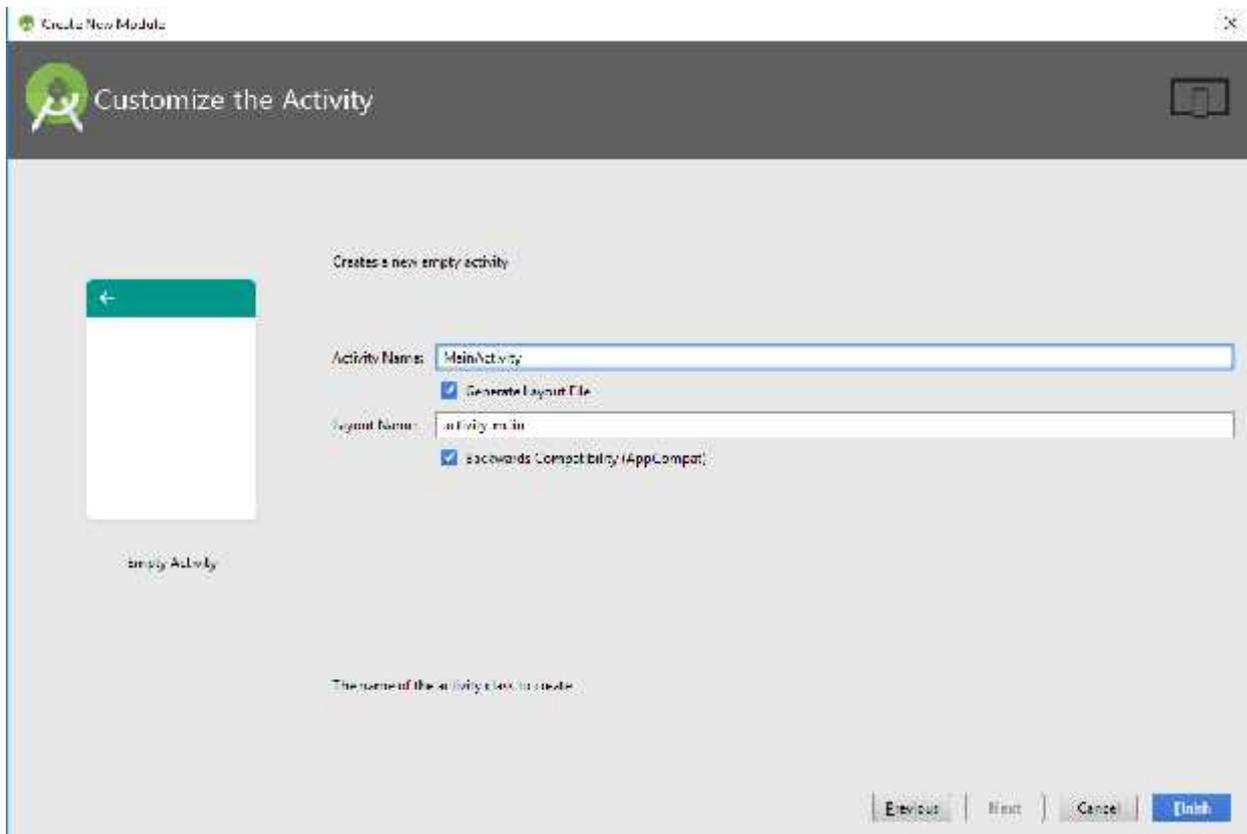
Minimum SDK

Next

Empty Activity



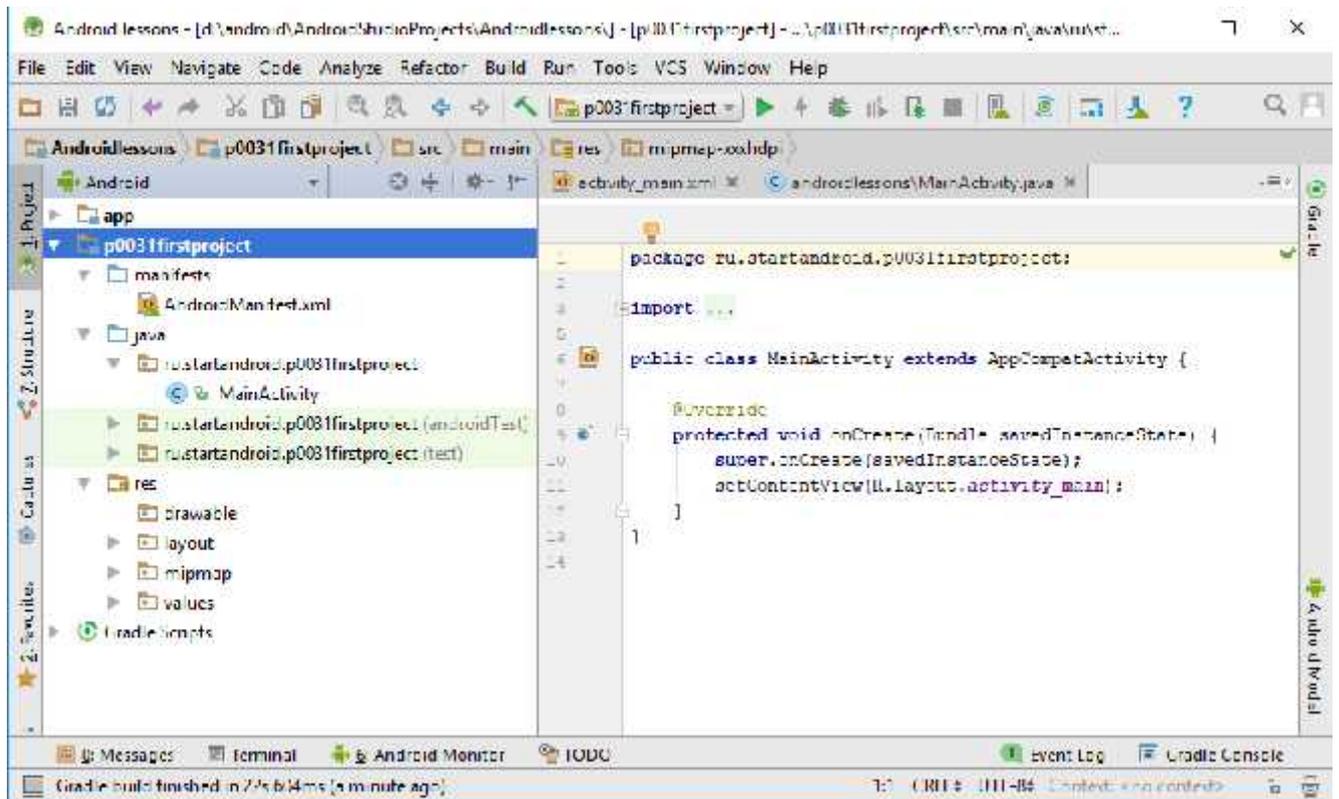
Next



Finish

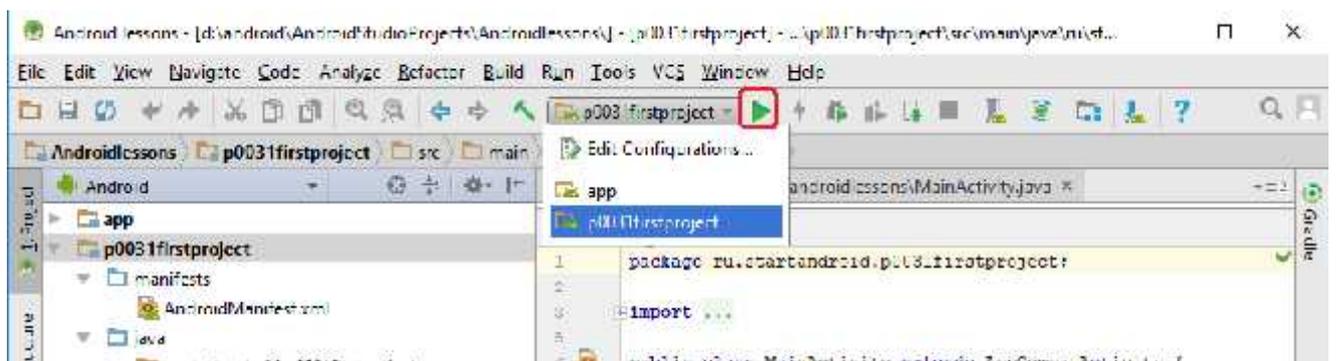
p0031firstproject - ,

Module name.



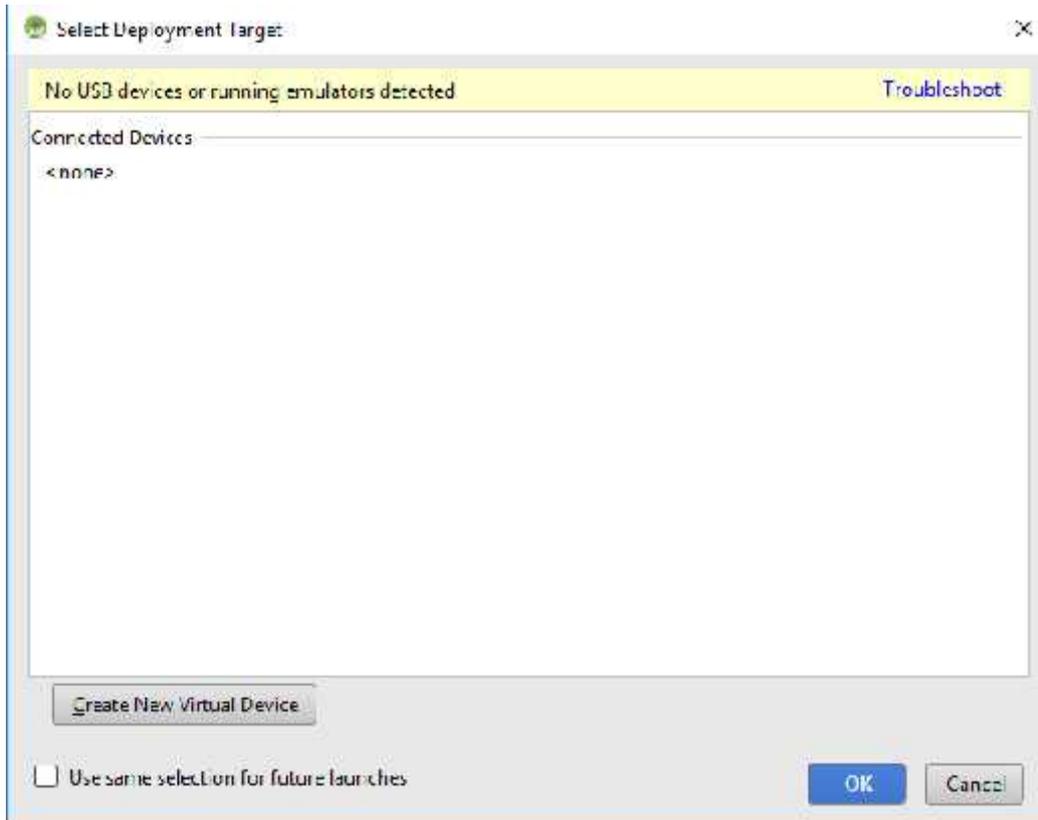
AndroidManifest.xml –
 java
 res

!



Shift+F10).

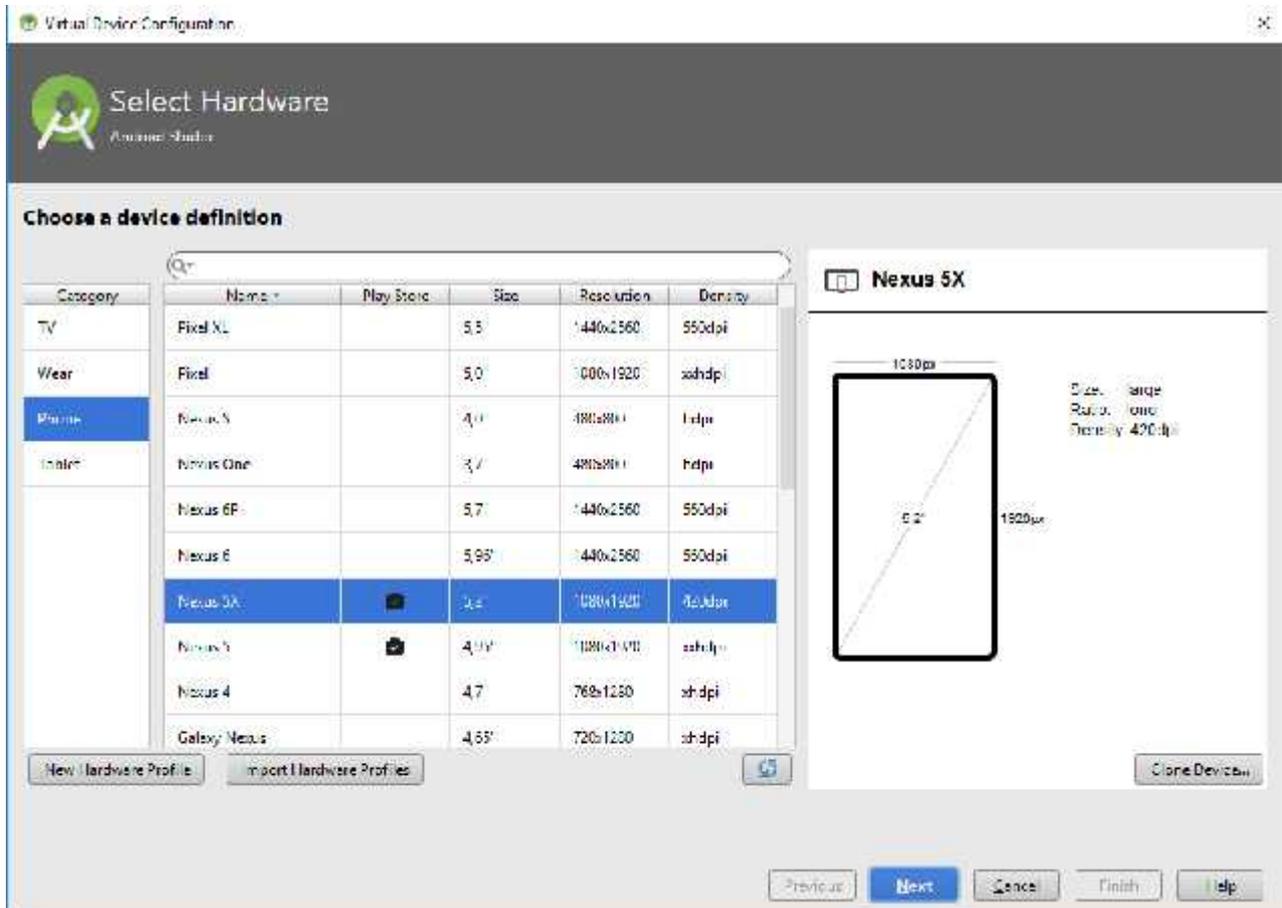
Android-



,

).

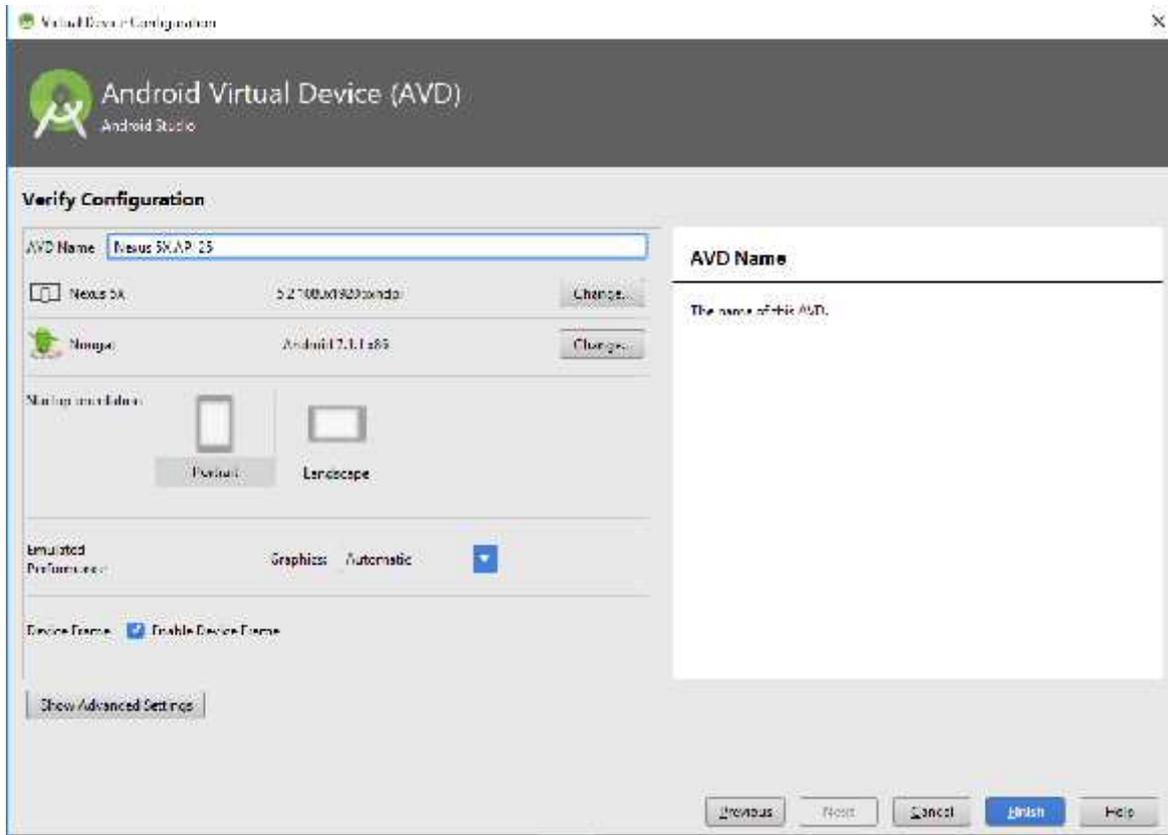
Create New Virtual Device



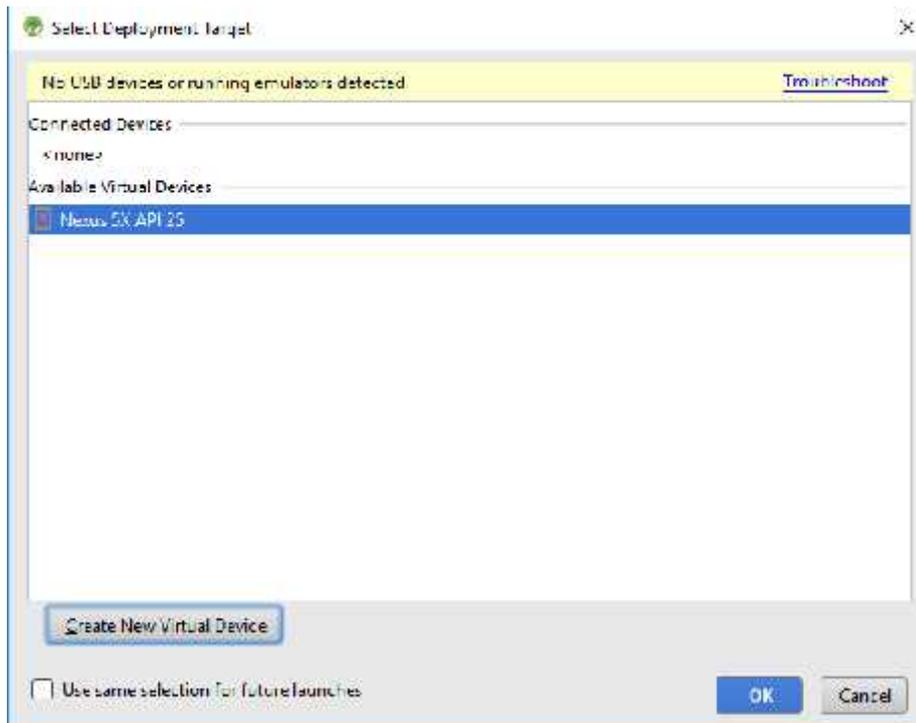
Next

x86 Images

Download. . .



Finish



Ok

- ()



Android

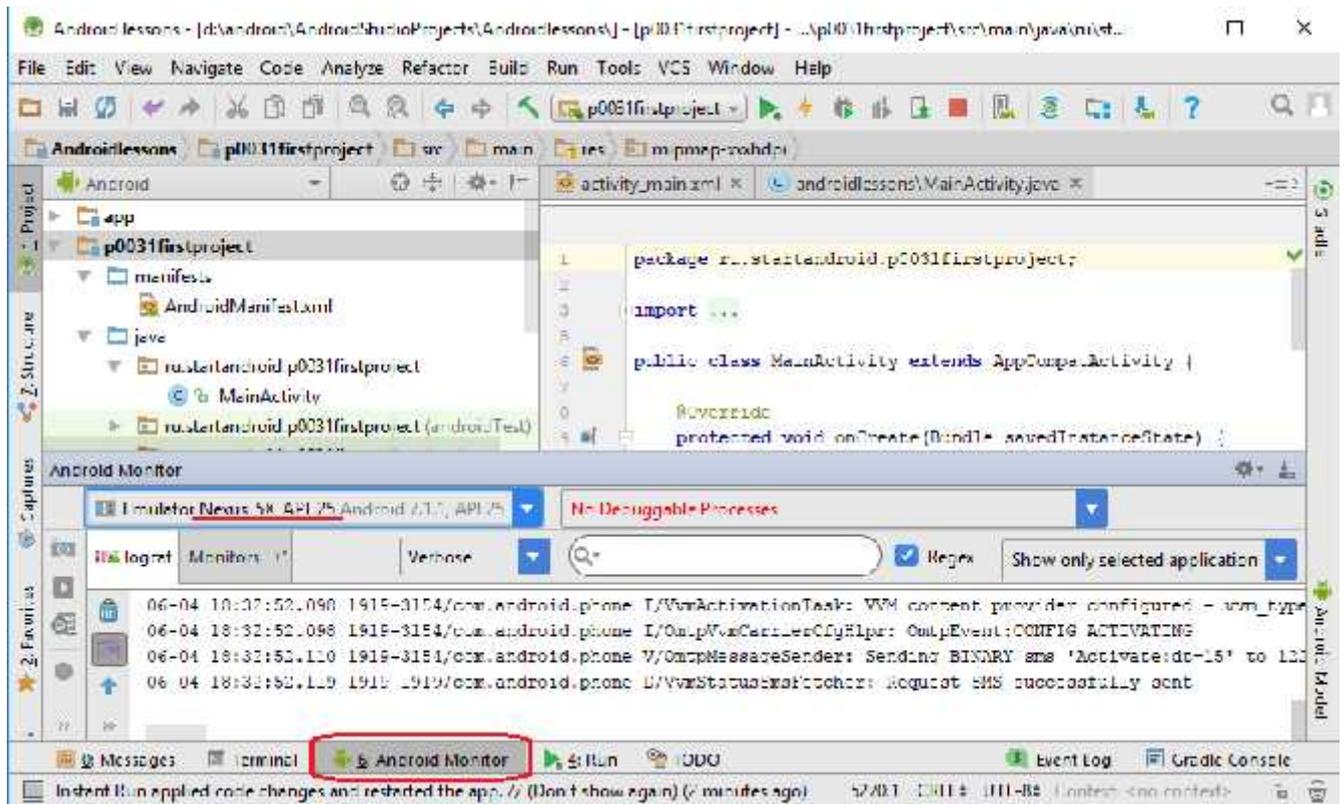




- FirstProject.

.. ,).

, Android Studio " " Android Monitor



Nexus_5X_API_25

(Shift+F10).

2017.

2.3.3 7.1.1

Android

P.S.

File > Close Project.

Android Studio,

_____ :

_____ -

_____ -

_____ -

_____ -

Android Studio

1. _____ :
2. _____ « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://metanit.com/java/android/> /

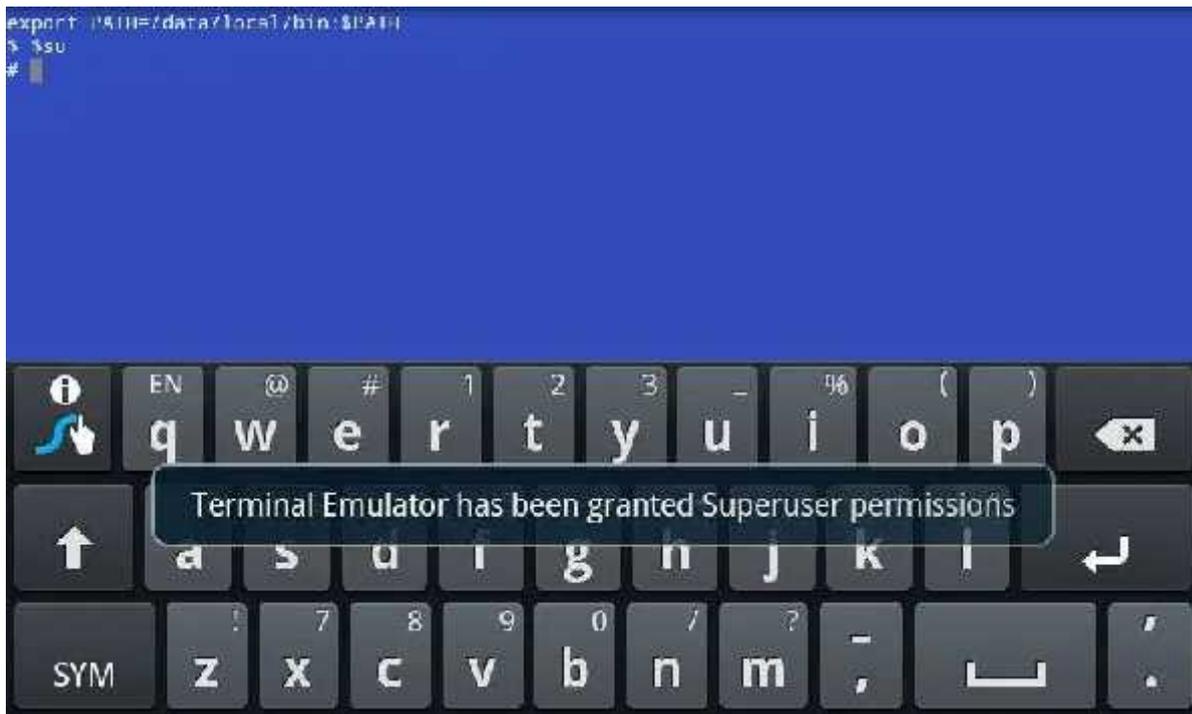
Android

Linux - Open Source Linux
 , Android.

Linux Windows.
 - Android Terminal Emulator.

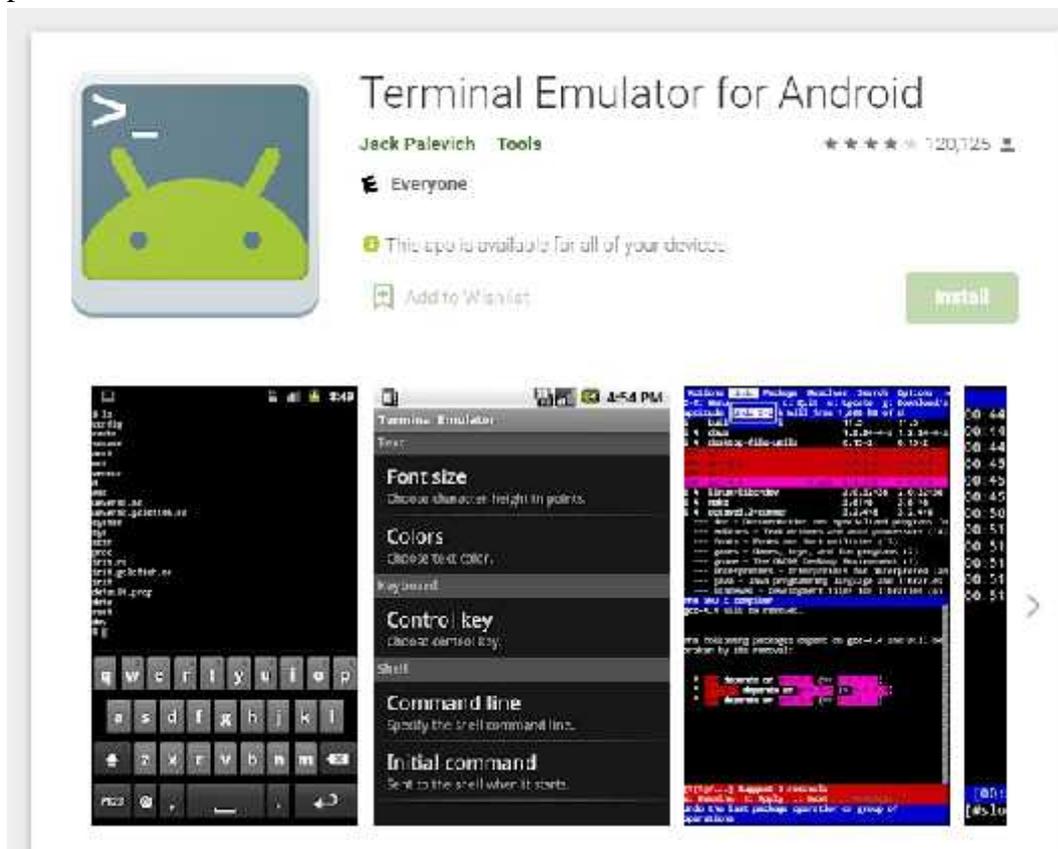
Linux,
 UTF-8.

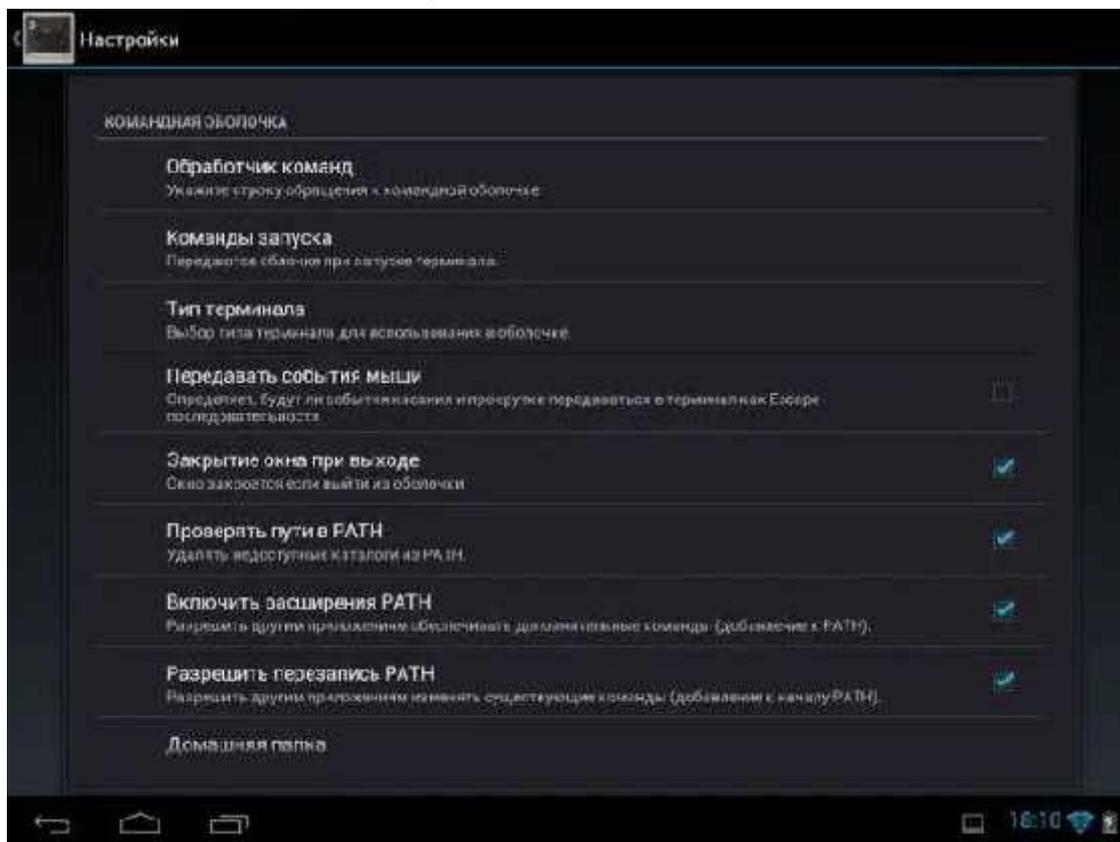
- root- ;
- ;
- root ;
- Linux;
- , Busy Box.



Play Market

<https://play.google.com/store/apps/details?id=jack.pal.androidterm&hl=ru>





adb - Android.

am -

badblocks -

bmgr - Android.

cat -

chmod -

```

Окно 1
entropy: []
sensorservice: [android.gui.SensorServer]
media.audio.policy: [android.media.IAudioPolicyService]
media.VTS: [android.media.IVideoTextService]
media.camera: [android.media.ICameraService]
memory.dumper: [android.memory.IMemoryDumper]
media.player: [android.media.IMediaPlayerService]
media.audio.fluore: [android.media.IAudioFluore]
SurfaceFlinger: [android.view.SurfaceFlinger]
drm.drmManager: [android.drm.IDrmManagerService]
media.mdp_service: [MdpService]
NvRAMAgent: [NvRAMAgent]
DMAgent: [DMAgent]
app_104@android:/sdcard/Books $

```

- chown** -
- cmp** -
- cp** -
- date** -
- dd** -
- dmesg** -
- du** -
- ext4_resize** - ext4 (root).
- fsck_msdos** -
- grep** -
- ifconfig** - (root).
- iptables** -
- kill** -
- log** -
- logcut** -
- ls** -
- lsmod** -
- lsof** -
- make_ext4fs** - ext4.
- md5** -
- mkdir** -
- make2fs** - ext2.
- mount** -
- mv** -

```
sergoot@sergoot-virtual-machine:~$  
sergoot@sergoot-virtual-machine:~$  
sergoot@sergoot-virtual-machine:~$ cd /home/sergoot/Загрузки  
sergoot@sergoot-virtual-machine:~/Загрузки$ chmod a+x ./genymotion-2.3.1_x86.bi  
n  
sergoot@sergoot-virtual-machine:~/Загрузки$ ./genymotion 2.3.1_x86.bin  
  
Installing to folder [/home/sergoot/Загрузки/genymotion]. Are you sure [y/n] ? █
```

netcfg -

notify -

ping -

pm - Android,

ps -

resize2fs -

rm -

rmdir -

route -

touch -

top -

screenshot - (root).

shutdown -

service -

Android Terminal Emulator -

Android Terminal Emulator

Linux,

Linux

Android Studio

1.

2. 19.201-78

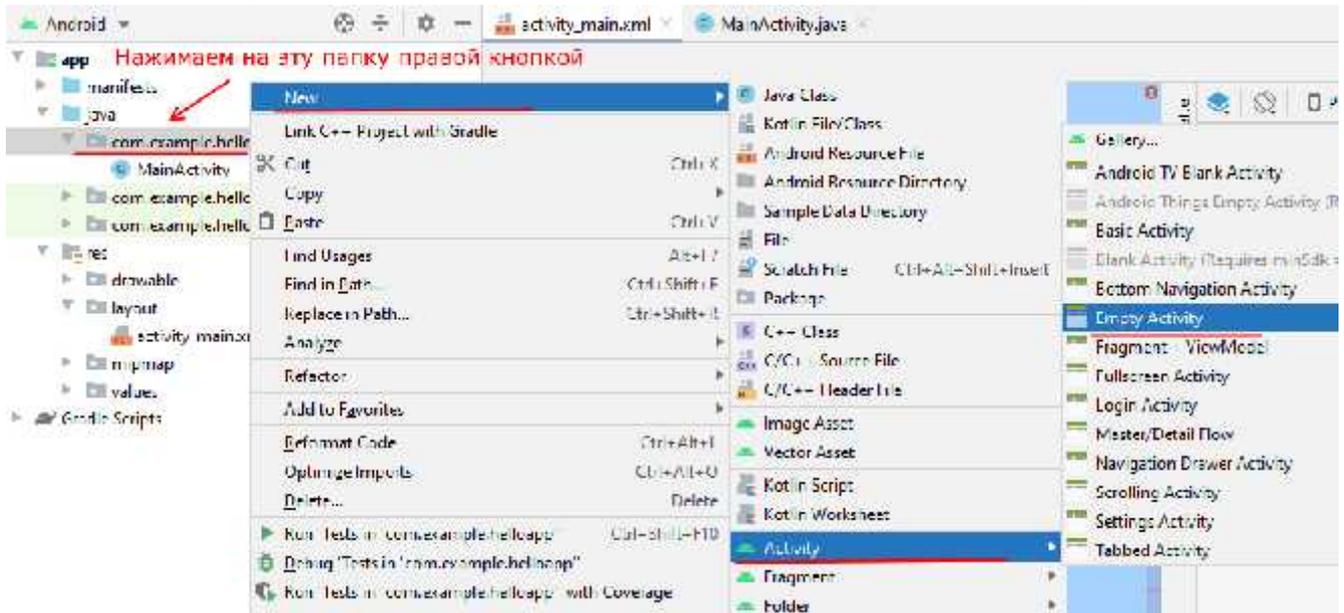
3. <https://metanit.com/java/android/>

Activity

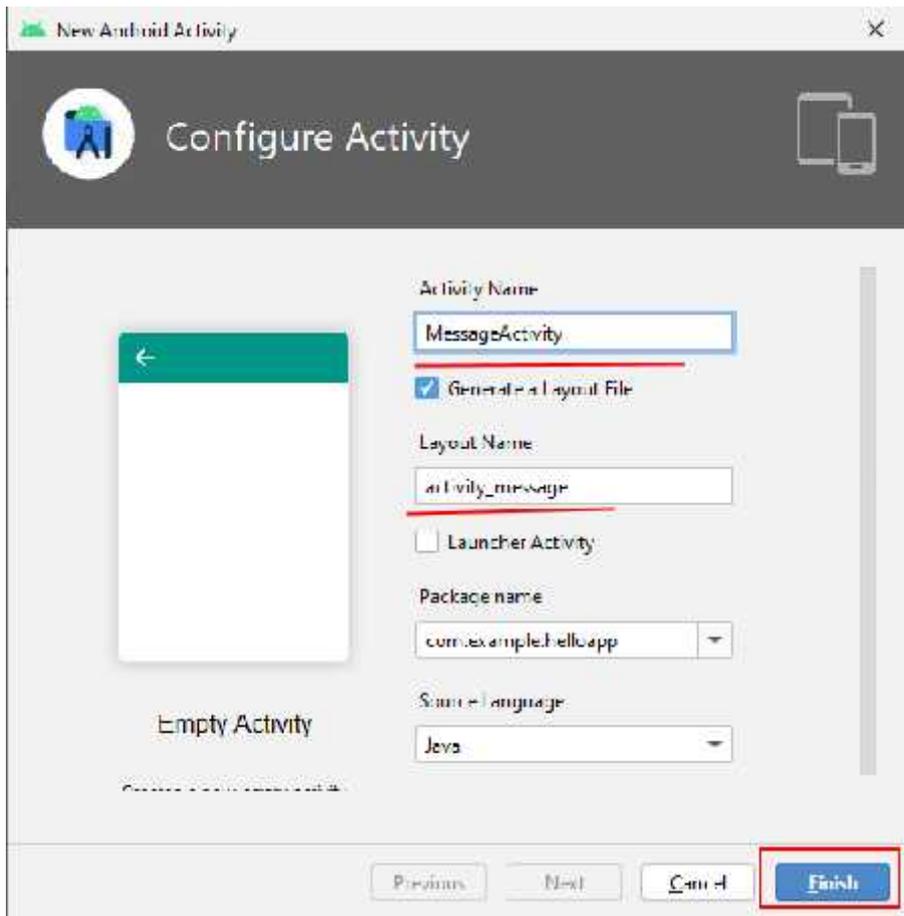
activity - MainActivity.

MainActivity,

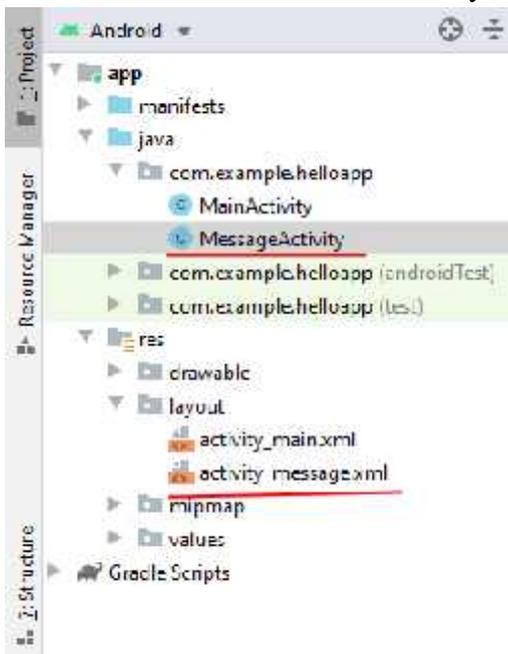
New->Activity->Empty Activity:

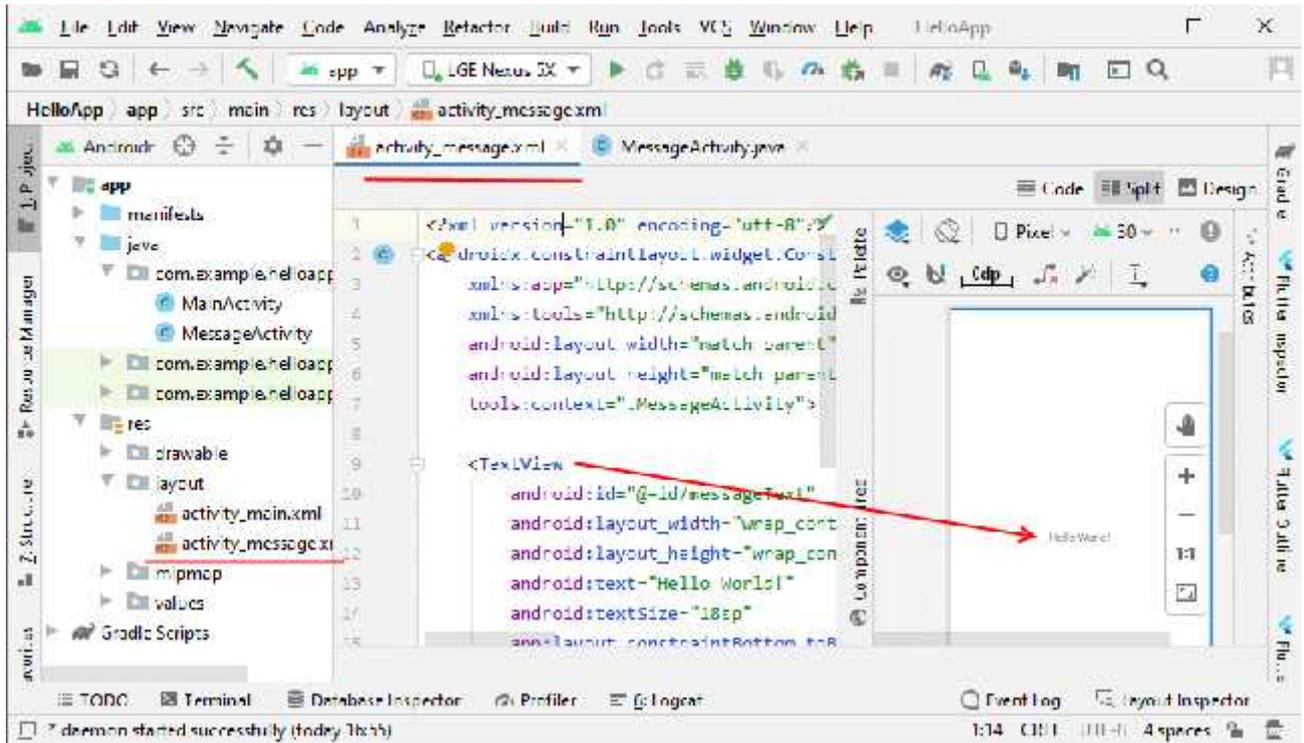


activity:



Activity Name MessageActivity.
 Name activity_message (Layout
 activity_message).
 • Package Name - , ,
 MainActivity :
 • Source Language Java
 Finish.
 MainActivity activity - MessageActivity:





MessageActivity

(
 MessageActivity (activity)
 activity?)
 MessageActivity.
 :

```

1 package com.example.helloapp;
2
3 import androidx.appcompat.app.AppCompatActivity;
4
5 import android.os.Bundle;
6
7 public class MessageActivity extends AppCompatActivity {
8
9     @Override
10    protected void onCreate(Bundle savedInstanceState) {
11        super.onCreate(savedInstanceState);
12        setContentView(R.layout.activity_message);
13    }
14 }

```

```

:
1 package com.example.helloapp;
2
3 import androidx.appcompat.app.AppCompatActivity;
4 import android.content.Intent;
5 import android.os.Bundle;
6 import android.widget.TextView;
7
8 public class MessageActivity extends AppCompatActivity {

```

```

9
10 @Override
11 protected void onCreate(Bundle savedInstanceState) {
12     super.onCreate(savedInstanceState);
13
14     setContentView(R.layout.activity_message);
15
16     // Получаем объект Intent, который запустил данную activity
17     Intent intent = getIntent();
18     // Получаем сообщение из объекта intent
19     String message = intent.getStringExtra("message");
20     // Получаем TextView по его id
21     TextView messageText = (TextView) findViewById(R.id.messageText);
22     // устанавливаем текст для TextView
23     messageText.setText(message);
24 }
25 }

```

MainActivity (activity), activity
onCreate(). activity onCreate,
activity activity.
activity setContentView

Activity Intent. Java
Intent getIntent:

```

1 Intent intent = getIntent();
Intent , activity

```

MainActivity Intent
getStringExtra():

```

1 String message = intent.getStringExtra("message");
" - ".
"message".
String message.
MessageActivity , TextView
TextView id
setText(), TextView :
1 TextView messageText = (TextView) findViewById(R.id.messageText);
2 messageText.setText(message);
, MessageActivity TextView.
, activity MainActivity
MessageActivity,
MainActivity , MessageActivity

```

activity_main.xml :

```

1 <?xml version="1.0" encoding="utf-8"?>

```

```

2 <androidx.constraintlayout.widget.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <EditText
11        android:id="@+id/editText"
12        android:layout_width="0dp"
13        android:layout_height="wrap_content"
14        android:layout_marginStart="16dp"
15        android:layout_marginTop="16dp"
16        android:hint="Введите текст"
17        app:layout_constraintRight_toLeftOf="@+id/button"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <Button
22        android:id="@+id/button"
23        android:layout_width="wrap_content"
24        android:layout_height="wrap_content"
25        android:layout_marginEnd="16dp"
26        android:layout_marginStart="16dp"
27        android:text="Отправить"
28        android:onClick="sendMessage"
29        app:layout_constraintTop_toTopOf="parent"
30        app:layout_constraintRight_toRightOf="parent"
31        app:layout_constraintLeft_toRightOf="@+id/editText" />
32
33
34 </androidx.constraintlayout.widget.ConstraintLayout>

```

ConstraintLayout : EditText () Button
 (). , . MessageActivity, **EditText:**

```

1 <EditText
2     android:id="@+id/editText"
3     android:layout_width="0dp"
4     android:layout_height="wrap_content"
5     android:layout_marginStart="16dp"
6     android:layout_marginTop="16dp"
7     android:hint="Введите текст"
8     app:layout_constraintRight_toLeftOf="@+id/button"
9     app:layout_constraintLeft_toLeftOf="parent"
10    app:layout_constraintTop_toTopOf="parent" />

```

- **android:id:** ,
 - **android:layout_width** "0dp".
ConstraintLayout
 - **android:layout_height**
wrap_content ,
 - **android:layout_marginStart:**
16
 - **android:layout_marginTop:**
16
 - **android:hint:** -
 - **app:layout_constraintRight_toLeftOf:** , EditText
 , id
"@+id/button"
EditText Button.
 - **app:layout_constraintLeft_toLeftOf="parent":** ,
ConstraintLayout (
 - **app:layout_constraintTop_toTopOf="parent":** ,
ConstraintLayout (
- Button, MessageActivity:

```

1 <Button
2     android:id="@+id/button"
3     android:layout_width="wrap_content"
4     android:layout_height="wrap_content"
5     android:layout_marginEnd="16dp"
6     android:layout_marginStart="16dp"
7     android:text="Отправить"
8     android:onClick="sendMessage"
9     app:layout_constraintTop_toTopOf="parent"
10    app:layout_constraintRight_toRightOf="parent"
11    app:layout_constraintLeft_toRightOf="@+id/editText" />

```

- **android:id:** - button.
- **android:layout_width** -
wrap_content, ,
- **android:layout_height** - wrap_content ,
- **android:layout_marginStart:**
- EditText.

16

- **android:layout_marginTop:**

16

- **android:text:**

- **android:onClick:**

"sendMessage",

activity (MainActivity).

sendMessage,

- **app:layout_constraintLeft_toRightOf="@+id/editText":**

Button

EditText.

="@+id/editText"

id editText,

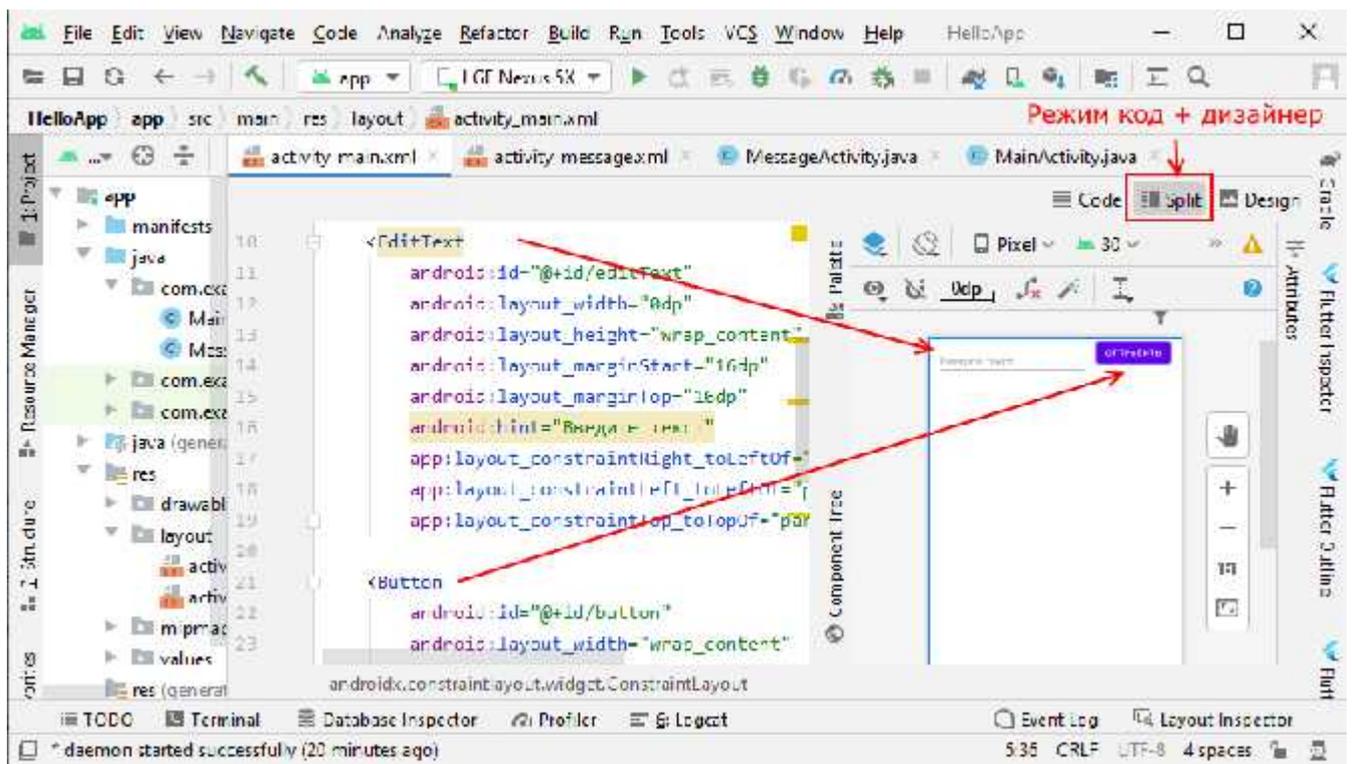
- **app:layout_constraintTop_toTopOf="parent":**

ConstraintLayout

- **app:layout_constraintRight_toRightOf:**

ConstraintLayout

(+),



: android:onClick="sendMessage".

sendMessage,

MessageActivity.

MainActivity:

```

1 package com.example.helloapp;
2
3 import androidx.appcompat.app.AppCompatActivity;
4

```

```

5 import android.content.Intent;
6 import android.os.Bundle;
7 import android.view.View;
8 import android.widget.EditText;
9
10 public class MainActivity extends AppCompatActivity {
11
12     @Override
13     protected void onCreate(Bundle savedInstanceState) {
14         super.onCreate(savedInstanceState);
15         setContentView(R.layout.activity_main);
16     }
17     // Метод обработки нажатия на кнопку
18     public void sendMessage(View view) {
19         // действия, совершаемые после нажатия на кнопку
20         // Создаем объект Intent для вызова новой Activity
21         Intent intent = new Intent(this, MessageActivity.class);
22         // Получаем текстовое поле в текущей Activity
23         EditText editText = (EditText) findViewById(R.id.editText);
24         // Получаем текст данного текстового поля
25         String message = editText.getText().toString();
26         // Добавляем с помощью свойства putExtra объект - первый параметр - ключ,
27         // второй параметр - значение этого объекта
28         intent.putExtra("message", message);
29         // запуск activity
30         startActivity(intent);
31     }
32 }

```

```

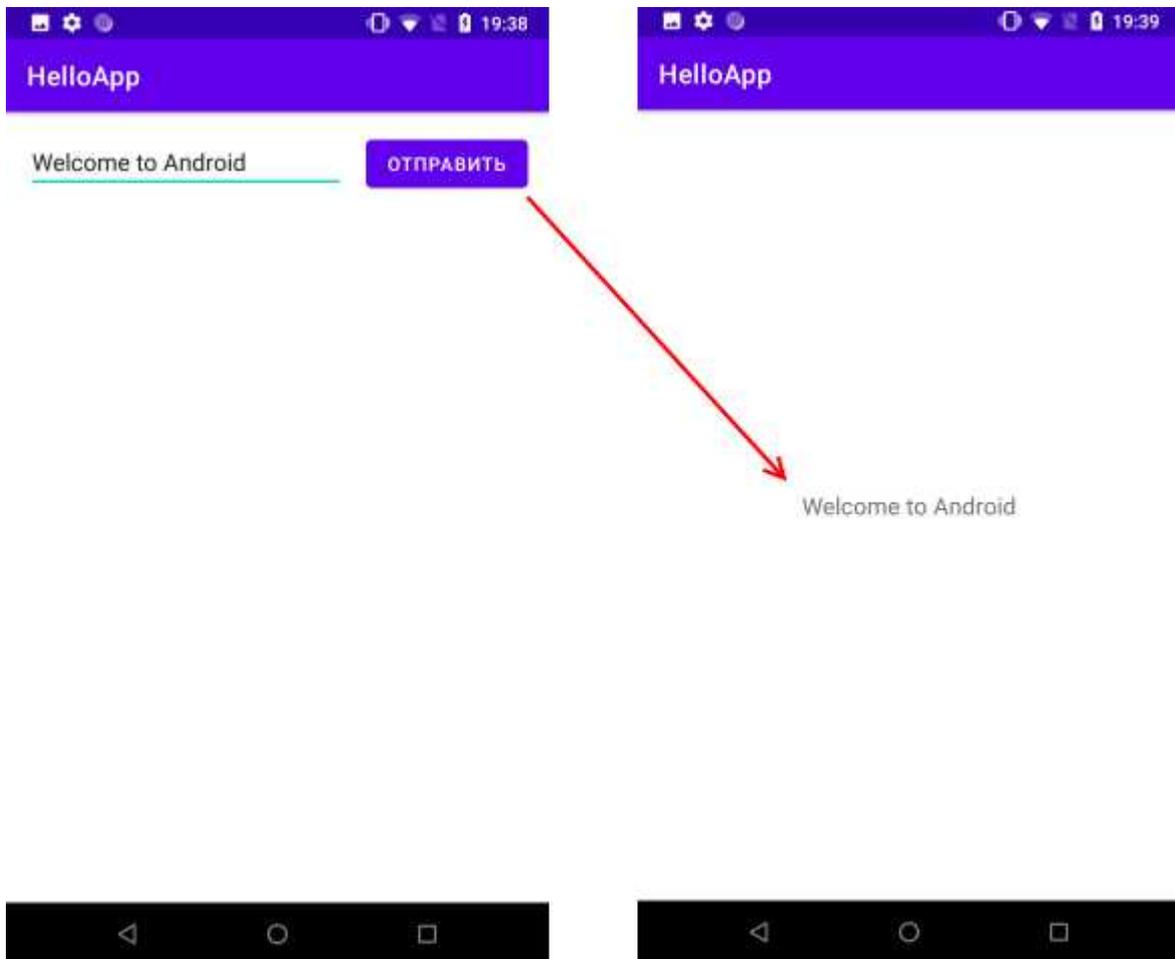
-      sendMessage()
View,      :
1 public void sendMessage(View view) {
            activity      Intent.      Intent
            ,      (      ,      activity):
1 Intent intent = new Intent(this, MessageActivity.class);
            :
•      -      Context (
    this      ,      MainActivity
    Context)
•      ,      Intent.
            ,      MessageActivity,
            sendMessage()      findViewById,
            EditText      intent:
1 EditText editText = (EditText) findViewById(R.id.editText);
2 String message = editText.getText().toString();
            activity:
1 intent.putExtra("message", message);

```

```

        "message"
    activity
        MessageActivity
    1 String message = intent.getStringExtra("message");
      activity.startActivity()
    Intent:
    1 startActivity(intent);
        Intent.
        Activity,
        activity - MessageActivity,

```



```

:
_____
_____
_____
_____
_____

```

1. _____
2. 19.201-78 « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://android-study.ru/>

!!!

```
// _____
```

<</>

```
// _____
```

<</>

Android Studio

?

```
//setContentView(R.layout.activity_main);
```

/* */

```

*
*
*
*/

```

-
-
-
-
1. _____ :
 2. _____ « _____ », 2020. - 384 . ISBN 978-5-4468-9443-7
 3. <https://android-study.ru/>

TextView:

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent">
7
8     <TextView
9         android:id="@+id/textView1"
10        android:layout_width="0dp"
11        android:layout_height="wrap_content"
12        android:gravity="center"
13        android:textSize="28sp"
14        android:textColor="#3f51b5"
15        android:text="Android Lollipop"
16
17        app:layout_constraintLeft_toLeftOf="parent"
18        app:layout_constraintRight_toRightOf="parent"
19        app:layout_constraintTop_toTopOf="parent"
20        app:layout_constraintBottom_toTopOf="@+id/textView2"
21        />
22     <TextView
23        android:id="@+id/textView2"
24        android:layout_width="0dp"
25        android:layout_height="wrap_content"
26        android:gravity="center"
27        android:textSize="28sp"
28        android:textColor="#3f51b5"
29        android:text="Android Marshmallow"

```

```

30
31     app:layout_constraintLeft_toLeftOf="parent"
32     app:layout_constraintRight_toRightOf="parent"
33     app:layout_constraintBottom_toTopOf="@+id/textView3"
34     app:layout_constraintTop_toBottomOf="@+id/textView1"
35     />
36 <TextView
37     android:id="@+id/textView3"
38     android:layout_width="0dp"
39     android:layout_height="wrap_content"
40     android:gravity="center"
41     android:textSize="28sp"
42     android:textColor="#3f51b5"
43     android:text="Android Nougat"
44
45     app:layout_constraintLeft_toLeftOf="parent"
46     app:layout_constraintRight_toRightOf="parent"
47     app:layout_constraintBottom_toBottomOf="parent"
48     app:layout_constraintTop_toBottomOf="@+id/textView2"
49     />
50
51 </androidx.constraintlayout.widget.ConstraintLayout>

```



Android Lollipop

Android Marshmallow

Android Nougat



TextView

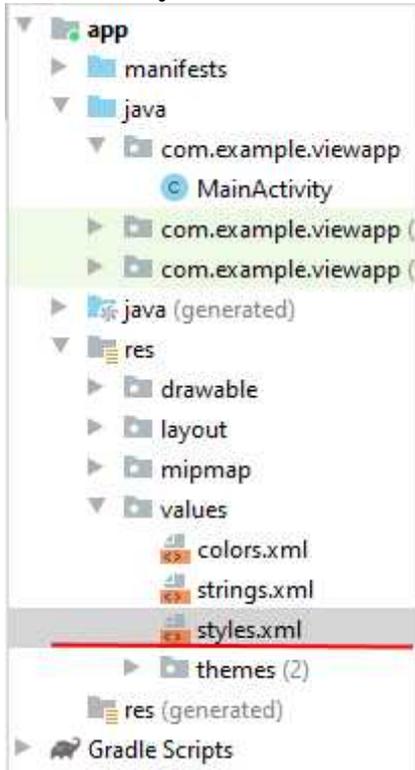
TextView.

res/values.

res/values

Value Resource File,

styles.xml:



styles.xml

:

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <resources>
3   <style name="TextViewStyle">
4     <item name="android:layout_width">0dp</item>
5     <item name="android:layout_height">wrap_content</item>
6     <item name="android:textColor">#3f51b5</item>
7     <item name="android:textSize">28sp</item>
8     <item name="android:gravity">center</item>
9   </style>
10 </resources>

```

TextViewStyle,

item

TextView.

<style>.

name

parent

item

name

activity_main.xml:

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout
3   xmlns:android="http://schemas.android.com/apk/res/android"
4   xmlns:app="http://schemas.android.com/apk/res-auto"

```

```

5   android:layout_width="match_parent"
6   android:layout_height="match_parent">
7
8   <TextView
9       android:id="@+id/textView1"
10
11      style="@style/TextViewStyle"
12
13      android:text="Android Lollipop"
14      app:layout_constraintLeft_toLeftOf="parent"
15      app:layout_constraintRight_toRightOf="parent"
16      app:layout_constraintTop_toTopOf="parent"
17      app:layout_constraintBottom_toTopOf="@+id/textView2"
18  />
19  <TextView
20      android:id="@+id/textView2"
21      style="@style/TextViewStyle"
22      android:text="Android Marshmallow"
23      app:layout_constraintLeft_toLeftOf="parent"
24      app:layout_constraintRight_toRightOf="parent"
25      app:layout_constraintBottom_toTopOf="@+id/textView3"
26      app:layout_constraintTop_toBottomOf="@+id/textView1"
27  />
28  <TextView
29      android:id="@+id/textView3"
30      style="@style/TextViewStyle"
31      android:text="Android Nougat"
32      app:layout_constraintLeft_toLeftOf="parent"
33      app:layout_constraintRight_toRightOf="parent"
34      app:layout_constraintBottom_toBottomOf="parent"
35      app:layout_constraintTop_toBottomOf="@+id/textView2"
36  />
37
38 </androidx.constraintlayout.widget.ConstraintLayout>
    style="@style/TextViewStyle"

```

item

activity

activity

Android

, Theme.AppCompat.Light.DarkActionBar

AndroidManifest.xml.

application,

:

```

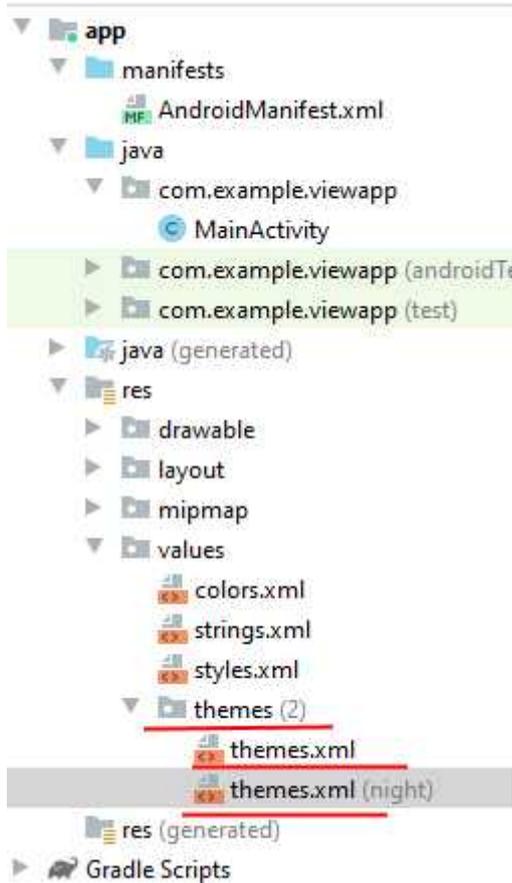
1 <application
2     android:allowBackup="true"
3     android:icon="@mipmap/ic_launcher"
4     android:label="@string/app_name"
5     android:roundIcon="@mipmap/ic_launcher_round"
6     android:supportsRtl="true"
7     android:theme="@style/Theme.ViewApp">
        android:theme.
Theme.ViewApp.

```

res/values.

: themes.xml:

themes,



themes.xml

```

1 <resources xmlns:tools="http://schemas.android.com/tools">
2     <!-- Base application theme. -->
3     <style name="Theme.ViewApp" parent="Theme.MaterialComponents.DayNight.DarkActionBar">
4         <!-- Primary brand color. -->
5         <item name="colorPrimary">@color/purple_500</item>
6         <item name="colorPrimaryVariant">@color/purple_700</item>
7         <item name="colorOnPrimary">@color/white</item>
8         <!-- Secondary brand color. -->
9         <item name="colorSecondary">@color/teal_200</item>
10        <item name="colorSecondaryVariant">@color/teal_700</item>
11        <item name="colorOnSecondary">@color/black</item>
12        <!-- Status bar color. -->

```

```

13     <item name="android:statusBarColor" tools:targetApi="1">attr/colorPrimaryVariant</item>
14     <!-- Customize your theme here. -->
15 </style>
16 </resources>

```

```

parent
    style..
        "Theme.ViewApp"
        "Theme.MaterialComponents.DayNight.DarkActionBar".
        ,
        , colorPrimary,
"@color/purple_500".

```

```

1 <item name="colorPrimary">#1565C0</item>

```

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent">
7
8     <Button
9         android:layout_width="wrap_content"
10        android:layout_height="wrap_content"
11        android:text="Hello Android"
12        app:layout_constraintLeft_toLeftOf="parent"
13        app:layout_constraintRight_toRightOf="parent"
14        app:layout_constraintTop_toTopOf="parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16    />
17
18 </androidx.constraintlayout.widget.ConstraintLayout>

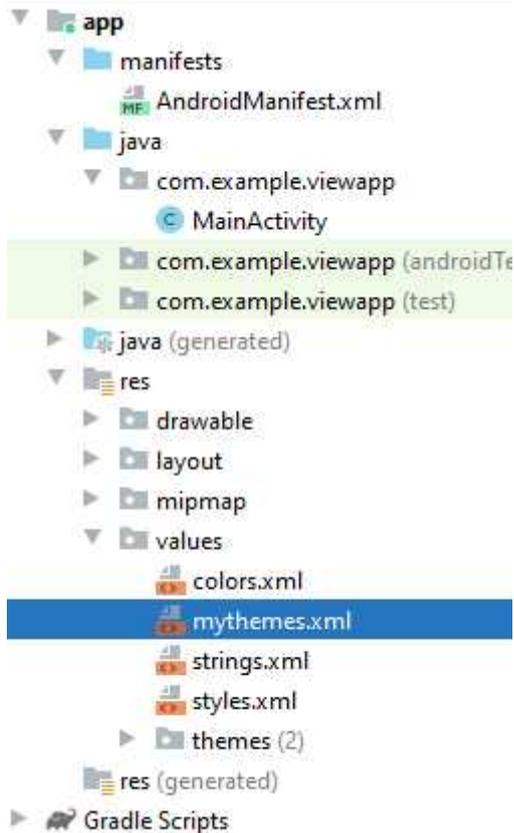
```



res/values

mythemes.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <resources>
3     <style name="MyTheme" parent="Theme.AppCompat.Light">
4         <item name="android:textColor">#FF018786</item>
5         <item name="android:textSize">28sp</item>
6     </style>
7 </resources>
```



"MyTheme",

Theme.AppCompat.Light.

:

(textSize) - 28sp,

(textColor) - #FF018786.

AndroidManifest.xml:

```
1 <application
2     android:allowBackup="true"
3     android:icon="@mipmap/ic_launcher"
4     android:label="@string/app_name"
5     android:roundIcon="@mipmap/ic_launcher_round"
6     android:supportsRtl="true"
7
8     android:theme="@style/MyTheme"><!-- применение темы -->
```

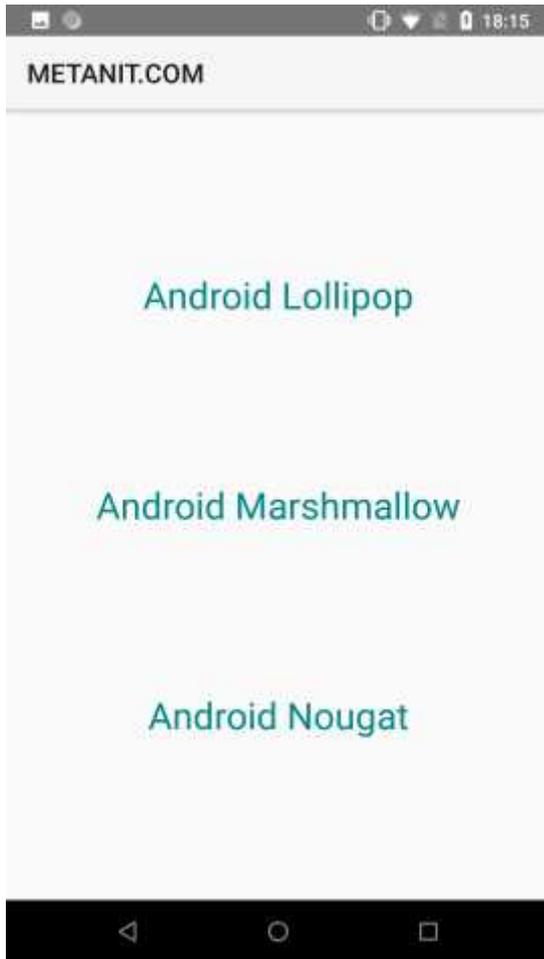
activity_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout
```

```

3   xmlns:android="http://schemas.android.com/apk/res/android"
4   xmlns:app="http://schemas.android.com/apk/res-auto"
5   android:layout_width="match_parent"
6   android:layout_height="match_parent">
7
8   <TextView
9       android:id="@+id/textView1"
10      android:layout_width="0dp"
11      android:layout_height="wrap_content"
12      android:gravity="center"
13      android:text="Android Lollipop"
14      app:layout_constraintLeft_toLeftOf="parent"
15      app:layout_constraintRight_toRightOf="parent"
16      app:layout_constraintTop_toTopOf="parent"
17      app:layout_constraintBottom_toTopOf="@+id/textView2"
18  />
19  <TextView
20      android:id="@+id/textView2"
21      android:layout_width="0dp"
22      android:layout_height="wrap_content"
23      android:gravity="center"
24      android:text="Android Marshmallow"
25      app:layout_constraintLeft_toLeftOf="parent"
26      app:layout_constraintRight_toRightOf="parent"
27      app:layout_constraintBottom_toTopOf="@+id/textView3"
28      app:layout_constraintTop_toBottomOf="@+id/textView1"
29  />
30  <TextView
31      android:id="@+id/textView3"
32      android:layout_width="0dp"
33      android:layout_height="wrap_content"
34      android:gravity="center"
35      android:text="Android Nougat"
36      app:layout_constraintLeft_toLeftOf="parent"
37      app:layout_constraintRight_toRightOf="parent"
38      app:layout_constraintBottom_toBottomOf="parent"
39      app:layout_constraintTop_toBottomOf="@+id/textView2"
40  />
41
42 </androidx.constraintlayout.widget.ConstraintLayout>
    ,
        TextView
        ,
        TextView
        ,
        textSize
        textColor,
        ,
        :

```



activity

Activity.

AndroidManifest.

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.viewapp"
4     android:versionCode="1"
5     android:versionName="1.0">
6
7     <application
8         android:allowBackup="true"
9         android:icon="@mipmap/ic_launcher"
10        android:label="@string/app_name"
11        android:roundIcon="@mipmap/ic_launcher_round"
12        android:supportsRtl="true"
13
14        android:theme="@style/Theme.ViewApp">
15        <activity android:name=".MainActivity" android:theme="@style/MyTheme">
16            <intent-filter>
17                <action android:name="android.intent.action.MAIN" />
18
19                <category android:name="android.intent.category.LAUNCHER" />
20            </intent-filter>

```


9 Swift

Swift

1. <https://metanit.com/swift/tutorial/1.1.php>
2. 19.201-78 « », 2020. - 384 . ISBN 978-5-4468-9443-7
3. <https://metanit.com/swift/tutorial/1.1.php>

Swift XCode

iOS
XCode. XCode Swift Objective-C
iOS Mac OSX. App

Store:

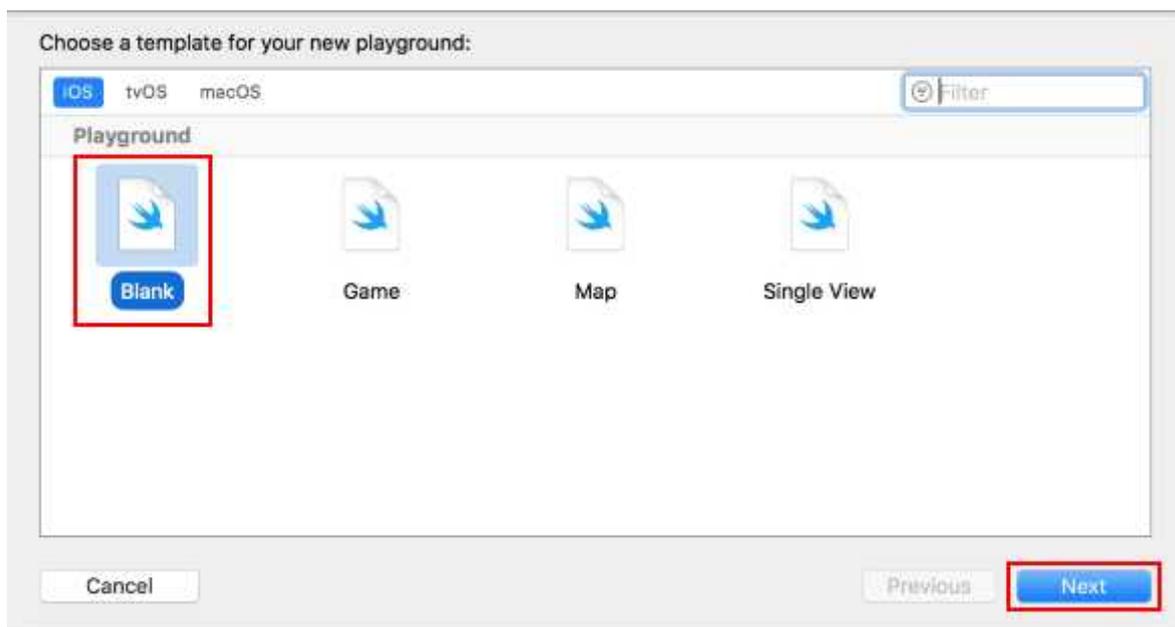


XCode.



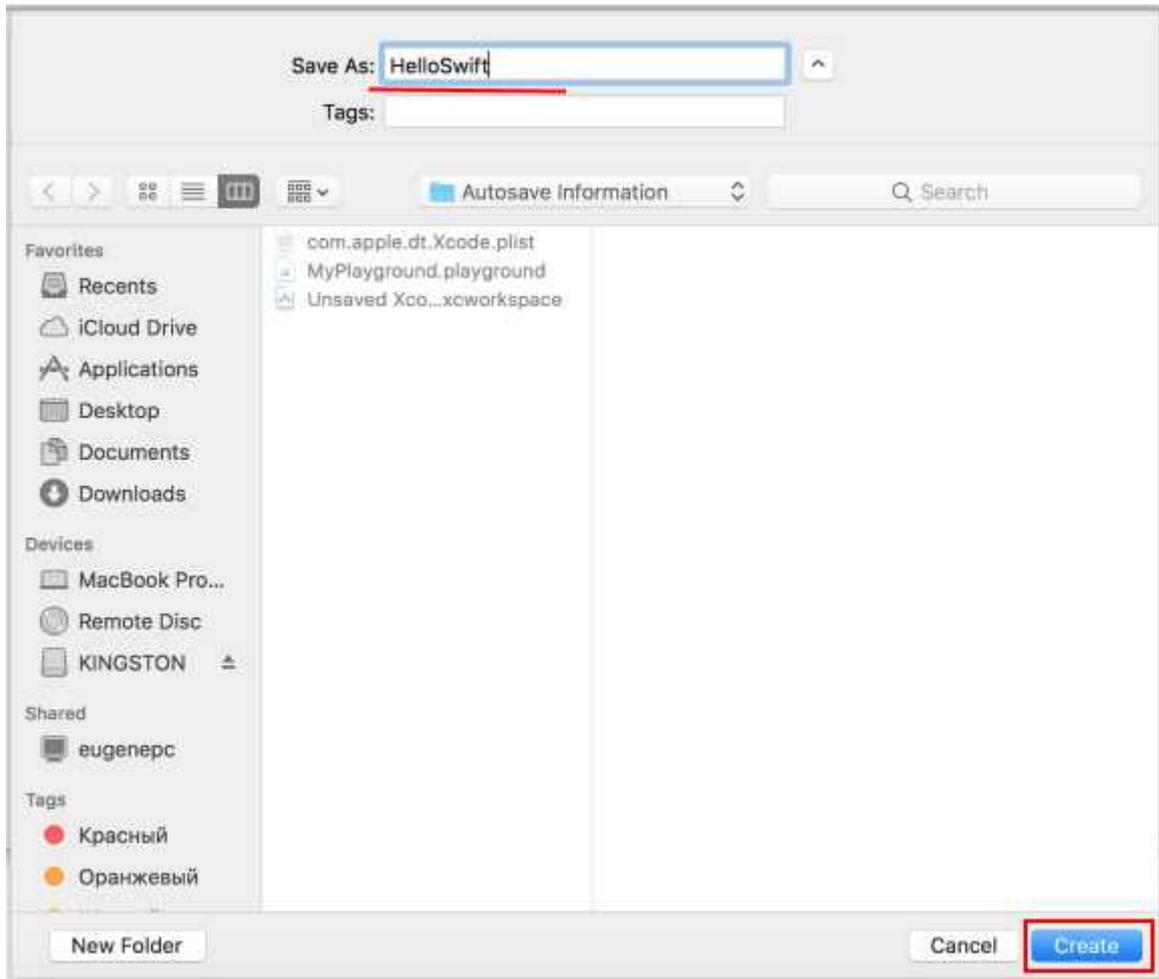
Get started with a playground.

- Blank:



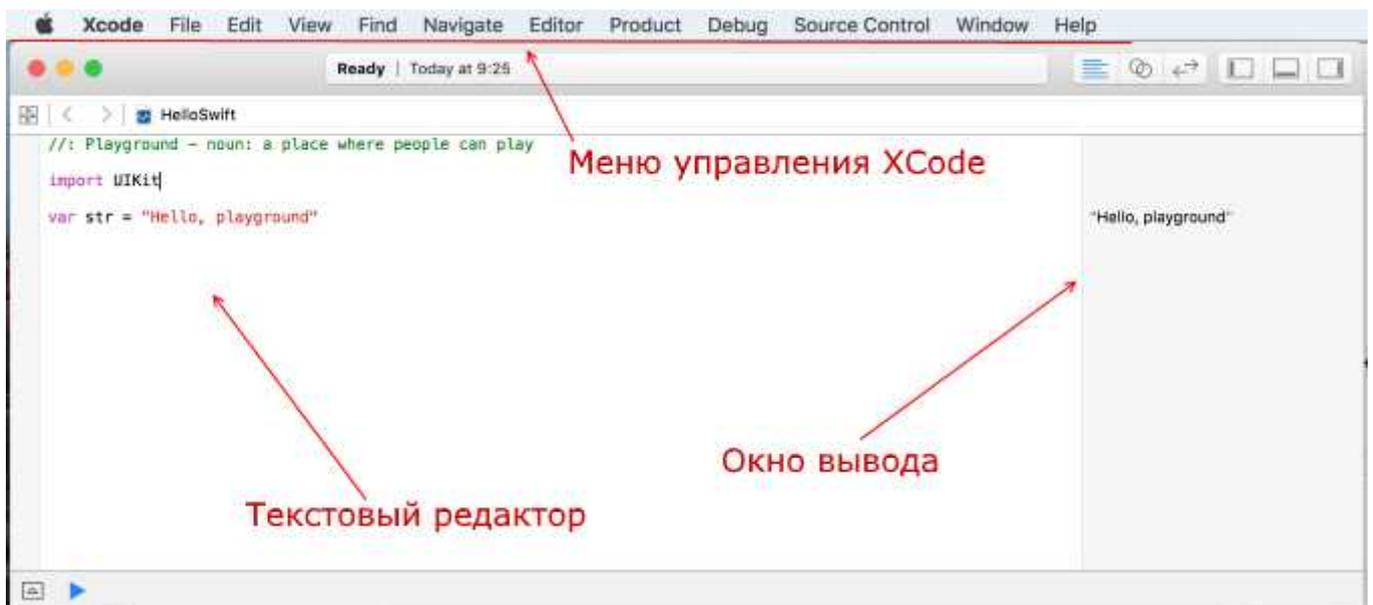
HelloSwift

Create:



Playground.

Swift.



MacOS

XCode.

Playground
Swift.

```
1 print("Hello world!")
print() -
world!".
```

"Hello



Playground XCode

Swift.

Swift.
(statement).

```
1 print("hello world!")
```

```
1 print("hello world!")
2 print("welcome to swift")
```

Swift

C, C++, C#, Java,

```
1 print("hello world!"); print("welcome to swift")
```

Swift

```
1 class Book { // начало блока класса
2     func print() { // начало блока функции
3         print("печать книги")
4     } // конец блока функции
5 } // конец блока класса
```

Swift

/*

*/:

```

1 /*
2  Первая программа на Swift
3  функция печатает строку hello world
4  */
5 print("hello world!")

```

```

1 print("hello world!") // функция печатает строку hello world
2 print("welcome to swift") // выводит строку welcome to swift

```

Swift

Swift

Swift,

var. :

```
1 var name = "Tom"
```

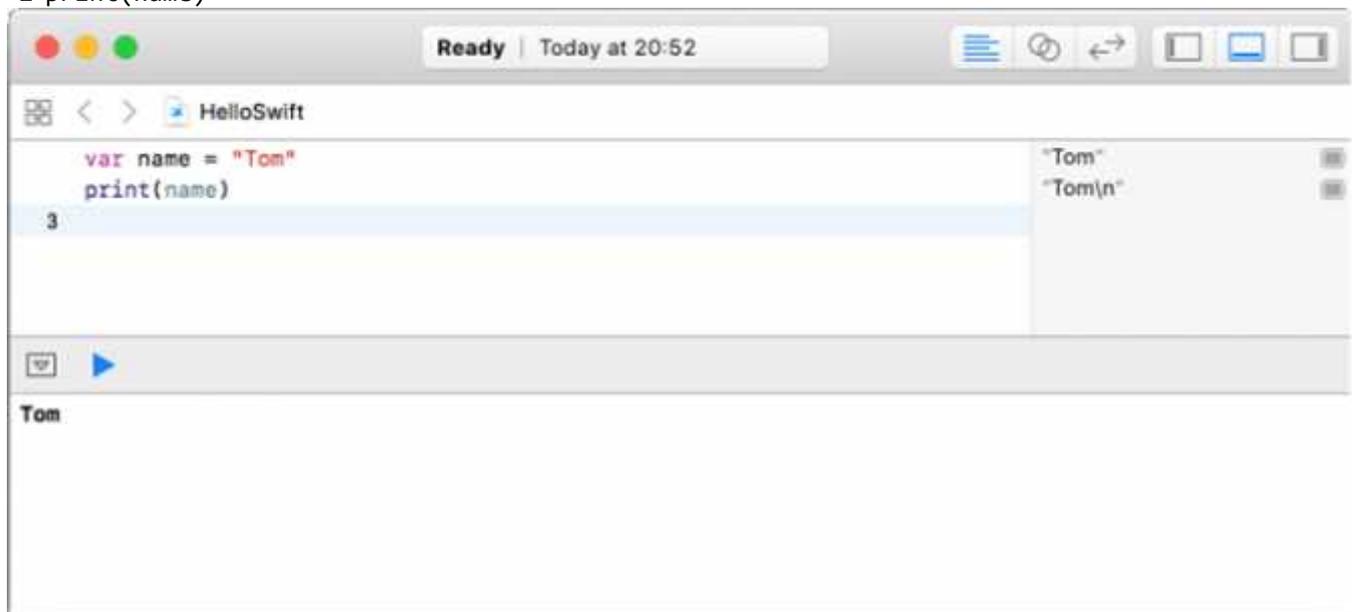
"name"

"Tom".

print,

```
1 var name = "Tom"
```

```
2 print(name)
```



```

1 var name = "Tom" // значение Tom
2 name = "Bob" // значение Bob

```

let,

```

1 let name = "Tom" // значение Tom
2 // name = "Bob" - так сделать нельзя, так как name - константа

```

```

1 var name = "Tom", surname = "Smith"

```

" CamelCase.

```

1 var personName = "Tom"
2 var personStreetAddress = "St. Patrick avenue, 20"

```

name :

```

1 var name = "Tom"
  Swift

```

- **Int8:** 8 (-128 127)
- **UInt8:** 8 (0 255)
- **Int16:** 16 (-32768 32767)
- **UInt16:** 16 (0 65535)
- **Int32:** 32 (-2147483648 2147483647)
- **UInt32:** 32 (0 4294967295)
- **Int64:** 64 (-9223372036854775808 9223372036854775807)
- **UInt64:** 64 (0 18446744073709551615)
- **Int:** Int32, 64- , 1, -30, 458. 32- - Int64
- **UInt:** UInt32, 64- , 1, 30, 458. 32- - UInt64
- **Float:** 32- , 6
- **Double:** 64- , 15
- **Float80:** 80-

- **Bool:** true false
- **String:**
- **Character:**

```
1 var age: Int = 32
2 var name: String = "Tom"
```

```
1 var название_переменной: тип_переменной = значение_переменной
```

```
1 var name: String
2 name = "Tom"
```

```
1 var height, weight: Double
```

```
1 var name = "Tom"
```

```
1 var age = 32
```

```
1 var d = 3.4 // тип Double
2 var f : Float = 1.2
3 d = f // ! Ошибка - разные типы
```

```
Double, f Float, d
```

Swift

```
1 var age: Int
2 age = "Tom"
```

```
1 var age: Int = 22
2 var years = age
```