**MUNDАRIJА**

**KIRISH**................................................................................................................ 2

1. **BOB. ILOVANI ISHLAB CHIQISH .……………………………………** 3
   1. Murakkab amallarni bajaruvchi mobil kalkulyator tahlili ………………. 3

**1.2** Masalani qo’yilishi …………………………………...……....................... 3

**II. BOB.** Murakkab amallarni bajaruvchi mobil kalkulyator yaratish **……….**  4

**2.1** Ilovasining texnik topshiriqlari……………................................................. 5

**2.2** Foydalanuvchi interfeysi va dizaynini ishlab chiqish ………………..… .. 5

**XULOSA……………………………………………………………….....** 6

**FOYDALANILGAN ADABIYOTLAR………………………………… 7**

**ILOVA.........................................................................................................** 8

**KIRISH**

Ilgari insonlar hisob-kitob masalalarida barmoqlaridan sanoq cho’plardan va shunga o‘hshash soda pridmetlardan foydalanishgan.Tabiiyki rivojlanish natijasida hisob-kitob masalari ham bir muncha murakkablashib bu pridmetlarning o’zi bilangina masalalarni yechib bo’lmay qolgan. Shuning uchun **1623 yilda Vilgelm Shikard** to'rtta arifmetik amalni bajara oladigan birinchi mexanik kalkulyator - "**Hisoblash soati**" ni ixtiro qildi.

Qurilma soatni hisoblash moslamasi deb nomlandi, chunki haqiqiy soatlarda bo'lgani kabi, harakat yulduzlar va viteslardan foydalanishga asoslangan edi. Ushbu ixtiro Shikardning do'sti, faylasufi va astronomi Yoxannes Kepler qo'lida amaliy foydalanishni topdi.

Undan keyin Blez Paskal (Paskalin, 1642) va Gotfrid Vilgelm Leybnitsning mashinalari bor edi.

Vaqtlar o‘tishi bilan bu hisoblash qurilmasi ham rivojlanib murakkab masalalarni ham yecha oladigan haqiqiy gigantga aylandi.Endi insonlar murakkab masalani yechish uchun soatlab yoki kunlab vaqt ketkizishmaydi.

**I BOB. BOB. ILOVANI ISHLAB CHIQISH**

**1.1 Murakkab amallarni bajaruvchi mobil kalkulyator tahlili.**

Yaratilgan ilovaga keladigan bo’lsak unchalik ham sodda emas, trigonometrik , logorfmik va arifmetik funksiyalarni bajarish uchun mo’ljallangan qulay va tushunish oson bo’lgan ilovadir. Ilova to‘liqligicha Java dasturlash tilida yozilgan .

Java dasturlash tili Oak dasturlash tili asosida paydo boʻldi. Oak dasturlash tili 90-yillarning boshida Sun Microsystems tomonidan platformaga, yaʼni operatsion sistemaga bogʻliq boʻlmagan holda ishlovchi yangi avlod aqlli qurilmalarini yaratishni maqsad qilib harakat boshlagan edi. Bunga erishish uchun Sun xodimlari C++ni ishlatishni rejalashtirdilar, lekin baʼzi sabablarga koʻra bu fikridan voz kechishdi. Oak muvofaqiyatsiz chiqdi va 1995-yilda Sun uning nomini Java ga almashtirdi, va uni WWW rivojlanishiga xizmat qilishi uchun maʼlum oʻzgarishlar qilishdi. Java 1990 yillarda ishlab chiqarila boshlangan bo'lsa ham, uning birinchi versiyasi(Java 1.0) 1996 yil ommaga taqdim etilgan. Undan so'ng keyingi versiyalar sekin-astalik bilan chiqa boshladi: 1998 yil — Java 2, 2004 yil — Java 5.0, 2006 yil — Java 6, 2011 yil — Java 7, 2014 yil — Java 8.

Java Obyektga Yo'naltirilgan Dasturlash(OOP-object oriented programming, ООП) tili va u C++ ga ancha o'xshash. Eng ko'p yo'l qo'yildigan xatolarga sabab bo'luvchi qismalari olib tashlanib, Java dasturlash tili ancha soddalashtirildi.

Java texnologiyasi o'ta sodda, xavfsizlikni yuqori darajada ta'minlab bera oladigan, kuchli, to'la obyektga yo'naltirilgan dasturlash tili bo'lib, muhit (platforma)ga bo'liq bo'lmagan holda ishlaydi. U bilan xatto eng kichik qurilmalarga ham dasturlar yozish mumkin. Java texnologiyasi to'laligicha Java Virtual Machine(JVM) ga asoslangan. JVM ning vazifasi tarjimonlik ya'ni, dastlab biz yozgan \*.java fayl kompilyator yordamida bayt kodga o'giriladi va JVM yordamida esa mashina tiliga aylantiriladi. Bu degani JVM qaysi platformaga tegishli bo'lsa, kodlarni ham o'sha platformaga moslab beradi.

JAVA imkoniyatlari;

— WORA — Write Once, Run Anywhere (portable). Platforma tanlamaydi;

— havfsizlik (ishonch yuq kodni havfsiz ishga tushirish);

— hotirani havfsiz boshqarish (avtomat ravishda musorlarni yig'adi);

— tarmoq uchun dasturlar yozish ;

— ko'p oqimli (Multi-thread) dasturlash;

class lar alohida fayllarda saqlanadi. Kerak bo'lsa ishlatiladi.

## Masalaning qo’yilishi

Bizga qo’yilgan talabga ko’ra ilova foydalanuvchi uchun qulay bo’lishi va tez hisob kitoblarni amalga oshirishi lozim. Yana har qanday telefon va planshetlarga moslasha olishi kerak.

**Loyihaning asosiy foydalanuvchilari:**

* **User (Ilovadan foydalanuvchi inson)**

**Loyihaga qo'yiladigan talablar**

**User**

Talab 1. Kalkulyatordan to’g’ri foydalana bilishi kerak

**II BOB. Murakkab amallarni bajaruvchi mobil kalkulyator yaratish**

**2.1. Ilovaning texnik topshiriqlari**

**Texnik topshiriq** – tizimni ishlab chiqish jarayonida mijozlar tomonidan qo`yilgan talablarni dasturchilarga tushunarli tilda va tartibda kengroq yoritilgan shaklidir. Texnik topshiriqlar dasturchilar uchun juda muhimdir. Chunki texnik topshiriq orqali dasturchilar tizimning to’laligicha mohiyatini tushunib olishadi.

Aniq va puxta ishlab chiqilgan texnik topshiriq har qanday saytni muvaffaqiyatli rivojlantirishning kalitidir. Bunday hujjatlar mavjud bo'lganda, buyurtmachi ham, dasturchi ham har ikki tomon ham bir xil yo'nalishda o'ylashlariga va loyihaning mohiyati va mazmunini teng darajada tushunishiga amin bo'lishlari mumkin.

Sayt uchun to'g'ri tayyorlangan texnik topshiriq ikkala tomonga qanday o'ziga xos afzalliklarni beradi?

**Texnik topshiriqlar mijozni himoya qiladi**. Vijdonsiz dasturchi bilan ishlashda (afsuski, bunday dasturchilar ham bor), Texnik topshiriqlar asosiy shartnomaga ilova sifatida sifatsiz xizmatlarga nisbatan mijozning asosiy argumenti bo'lib xizmat qiladi.

**Texnik topshiriqlar g'oyalarni tuzishda yordam beradi**. Ko'pincha, mijozlar ishlab chiquvchilarga butunlay noaniq va tarqoq fikrlar, so'zlar va istaklar bilan murojaat qilishadi. Natija qanday bo'lishi kerakligini tushunishga erishish oson - siz hamma narsani inobatga olishingiz va bitta hujjatga to'plashingiz kerak.

Texnik topshiriqlar byudjetni tejaydi. Yaxshi o'ylangan texnik vazifa mavjud bo'lganda, veb-saytni yaratish jarayonida muammolar (va shuning uchun qo'shimcha xarajatlar) ehtimoli nolga tenglashadi.

**Sayt uchun texnik topshiriqning asosiy bo'limlari** "Texnik topshiriqda nima bo'lishi kerak?" - loyihani tasdiqlash bosqichida mijozlar biz bilan bog'lanadigan asosiy savolga javob olish uchun sayt uchun texnik topshiriqning eng muhim bo'limlari bilan tanishib chiqishingizni tavsiya qilamiz.

**Loyihaning texnik xususiyatlari** Ko'pgina fikrlar sizga ma'lum qiyinchiliklarni keltirib chiqarishi mumkinligiga qaramay, kelajakdagi saytning texnik xususiyatlari haqidagi ma'lumotlar barcha talablarga javob beradigan loyihani ishlab chiqishda yordam beradi. E'tibor qilish kerak bo'lgan ba'zi texnik jihatlar:

**Moslashuvchanlik**. Sizning saytingiz mobil qurilmalarda alohida ekran variantini talab qiladimi? Ilova ko’rinishini moslashuvchan qilish bugungi kunning dolzarb muammolaridan biri sanaladi. Bizning ilova

**Ilovaning tuzilishi**

Oddiy bitta user foydalanidigan ya’ni hisob kitoblarni bajaradigan interfeysdan iborat .

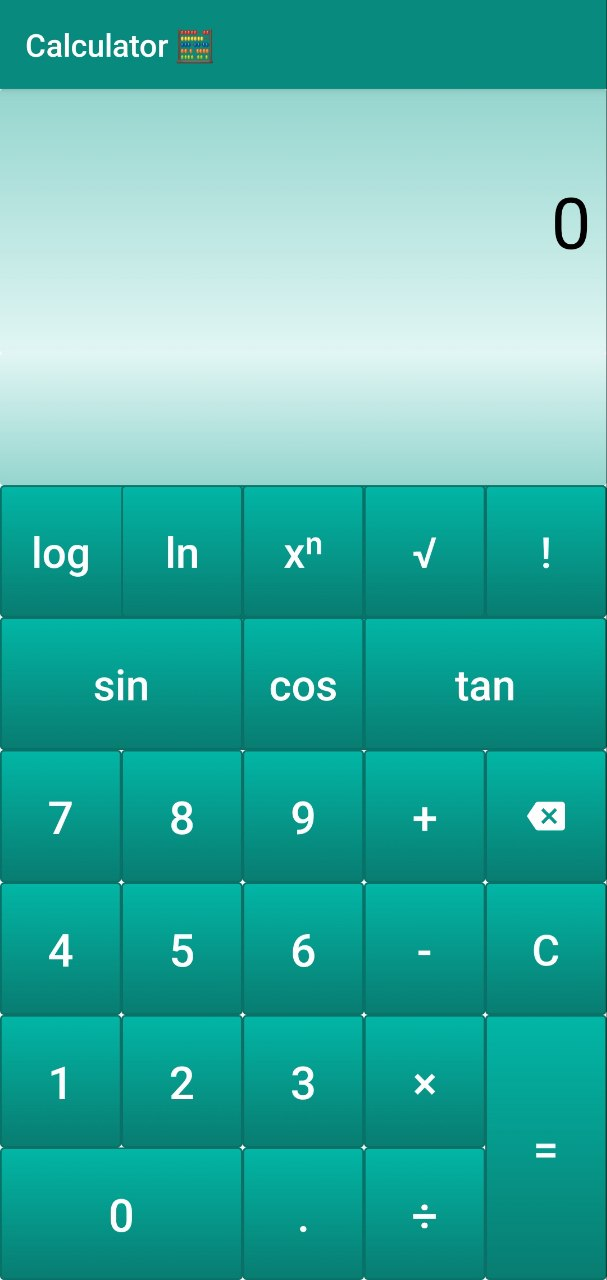
**2.2. Foydalanuvchi interfeysi va dizaynini ishlab chiqish**

Foydalanuvchi interfeysiga keladigan bo’lsak mahsulot mobil ilova bo’lganligi uchun avvalo mobil interfeys qanday bo‘lishi kerakligi haqida bilib olsak:

Avvalo, dizayn aniq va foydalanuvchilarga qulay bo'lishi kerak. Bundan tashqari, Android mobil qurilmasining foydalanuvchi interfeysi oddiy va muntazam tuzilgan bo'lishi kerak. Keyingi tizim nima uchun kerak va nima qilish kerak:

**2.1 - rasm. Asosiy oynasi.**

Ilova mobil kalkulyator bo’lganligi uchun unda faqat 1 ta interfeys mavjud (2.1 rasm).



2.1-rasm

**XULOSA**

Xulosa qilib aytganda ushbu ilovani yaratish mobaynida ko’plab yangi o’zim bilmagan bilimlarga ega bo’ldim, o‘ylaymanki bu bilimlar keljakda albatta menga asa qotidi. Bu ilovani yaratish jarayonida Android Studio dasturi bilan ishlashni uni o‘rnatish ishga tushirish java SDK si AVD va JDK larni o‘rnatishni va ularda to‘g‘ri foydalanishni o‘rgandim.

**FOYDALANILGAN ADABIYOTLAR RO’YXATI**

1. Xodiev B.Yu. va boshqalar. “Informatika” Oliy o’quv yurtlari uchun darslik -T.: TDIU. 2007y.

2. Alimov R.X., Yulchieva G.T., va boshqalar “Axborot texnologiyalari va tizimlari” darslik-T.: TDIU, 2010y.

**Intеrnеt resurslari**

1. [www.ccitt.uz](http://www.ccitt.uz) – O’zbekiston respublikasi Axborot texnologiyalari va kommunikatsiyalarini rivojlantirish vazirligi sayti.

2. www.ziyonet.uz – Ziyonet internet tarmog’i.

3. youtube.com

**ILOVA**

**AndroidManifest.xml**

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

<manifest xmlns:android="http://schemas.android.com/apk/res/android"

package="com.dataflair.scientificcalc">

<application

android:allowBackup="true"

android:icon="@mipmap/ic\_launcher"

android:label="@string/app\_name"

android:roundIcon="@mipmap/ic\_launcher\_round"

android:supportsRtl="true"

android:theme="@style/AppTheme">

<activity android:name=".MainActivity">

<intent-filter>

<action android:name="android.intent.action.MAIN" />

<category android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

</application>

</manifest>

**activity\_main.xml**

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

android:weightSum="9"

tools:context=".MainActivity">

<TextView

android:id="@+id/input\_user"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="2"

android:background="@drawable/bgcolor2"

android:gravity="center|end"

android:hint="0"

android:maxLength="14"

android:padding="10dp"

android:textColor="#000000"

android:textColorHint="#000000"

android:textSize="50sp" />

<TextView

android:id="@+id/sign\_user"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:gravity="center|end"

android:padding="10dp"

android:textColor="#000000"

android:textColorHint="#000000"

android:background="@drawable/bgcolor"

android:textSize="32sp" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:orientation="horizontal"

android:weightSum="5">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_log"

android:text="log"

android:textAllCaps="false"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_ln"

android:text="ln"

android:textAllCaps="false"

android:background="@drawable/background\_btn1"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_power"

android:background="@drawable/background\_btn1"

android:text="xⁿ"

android:textAllCaps="false"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_root"

android:text="√"

android:background="@drawable/background\_btn1"

android:textAllCaps="false"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_factorial"

android:background="@drawable/background\_btn1"

android:text="!"

android:textAllCaps="false"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:gravity="center"

android:orientation="horizontal"

android:weightSum="5">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="2"

android:onClick="btn\_sin"

android:text="sin"

android:textAllCaps="false"

android:background="@drawable/background\_btn1"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="btn\_cos"

android:text="cos"

android:textAllCaps="false"

android:textColor="@color/WhiteText"

android:background="@drawable/background\_btn1"

android:textSize="30sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="2"

android:onClick="btn\_tan"

android:text="tan"

android:textAllCaps="false"

android:background="@drawable/background\_btn1"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:orientation="horizontal"

android:weightSum="5">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_7"

android:text="7"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_8"

android:text="8"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_9"

android:text="9"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_add"

android:text="+"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<ImageButton

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_delete"

android:src="@drawable/ic\_backspace\_black\_24dp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:orientation="horizontal"

android:weightSum="5">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_4"

android:text="4"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_5"

android:text="5"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_6"

android:text="6"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_subtract"

android:text="-"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_clear"

android:text="C"

android:textColor="@color/WhiteText"

android:textSize="30sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="2"

android:orientation="horizontal"

android:weightSum="5">

<LinearLayout

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="4"

android:orientation="vertical"

android:weightSum="2">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:orientation="horizontal"

android:weightSum="4">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_1"

android:text="1"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_2"

android:text="2"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_3"

android:text="3"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_multiply"

android:text="×"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:orientation="horizontal"

android:weightSum="4">

<View

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="0"

android:background="@drawable/background\_btn1" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="2"

android:background="@drawable/background\_btn1"

android:onClick="btn\_0"

android:text="0"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn1"

android:onClick="btn\_dot"

android:text="."

android:textColor="@color/WhiteText"

android:textSize="32sp" />

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_divide"

android:text="÷"

android:textColor="@color/WhiteText"

android:textSize="32sp" />

</LinearLayout>

</LinearLayout>

<LinearLayout

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:orientation="vertical"

android:weightSum="1">

<Button

style="@style/Widget.AppCompat.Button.Borderless"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:background="@drawable/background\_btn2"

android:onClick="btn\_equal"

android:text="="

android:textColor="@color/WhiteText"

android:textSize="32sp" />

</LinearLayout>

</LinearLayout>

</LinearLayout>

**border.xml**

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:shape="rectangle">

</LinearLayout>

**style.xml**

<resources>

<!-- Base application theme. -->

<style

name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">

<!-- Customize the theme here. -->

<item name="colorPrimary">@color/colorPrimary</item>

<item name="colorPrimaryDark">@color/colorPrimaryDark</item>

<item name="colorAccent">@color/colorAccent</item>

</style>

</resources>

**color.xml**

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

<resources>

<color name="colorPrimary">#098A7E</color>

<color name="colorPrimaryDark">#097168</color>

<color name="colorPrimaryLight">#05CA8C </color>

<color name="colorAccent">#E91E63</color>

<color name="color1">#097C71</color>

<color name="color2">#02B6A6</color>

<color name="bg\_color">#E1F6F4</color>

<color name="bg\_color2">#95D5CE</color>

<color name="WhiteText">#ffffff</color>

</resources>

**string.xml**

<resources>

<string name="app\_name">Calculator 🧮</string>

</resources>