Research Article

Android-based '*Sangkakala*' music store application

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Abstract:

For flexibility in placing orders, consumers or customers do not need to make purchases directly to music stores, currently there is a need for flexibility from the purchase side, by building an Android-based musical instrument ordering application, while this convenience is also supported by the speed of the delivery service, and also the location of the buyer. The application that was built is the '*sangkakala*' music store, the hope of this application is that it can be maximized and donated to the shop owner to be able to support and boost buyers. This sangkakala music store was built with Android technology. Android is an operating system developed by Google for the purpose of building devices such as smartwatches, tablets and other devices, built using the linux kernel and adapted to all needs such as email, navigation and email management, including in this article, specifically showing images in the form of musical instruments that can be selected quickly and instantly by customers, the price system is added with the calculation of taxes and shipping costs, making it transparent. android built using java, kotlin, and C++ languages.

Keywords: Android, music store, C++, Kotlin, User Interface, online store

1. INTRODUCTION

The proliferation of online stores and some skyrocketed with very high level sales such as Shopee and tokopedia, as well as other online stores that provide offers, extraordinary advertisements that attract consumers with extraordinary, increasingly large levels of trust and public anemo, making these online stores grow very rapidly, among others, the increasing number of outlets or stores that join the two largest platforms, if in China there is Alibaba, and America, Japan there is Amazon, then in Indonesia it is not inferior to tokopedianya, but keep in mind that android-based applications are also continuously developed with the specifications of the goods sold. In this paper will specifically discuss the new store, namely trumpet. The trumpet online store was developed using the Android platform. Of course, it has advantages over several other online stores, from the price level, quality, specifications, and other advantages. Online stores [1,2,3] must continue to provide a novelty, especially in terms of innovation, especially in terms of price.

The advantages of the trumpet shop include competitive or cheaper prices without reducing the quality of the goods sold. Specifically, it will be discussed in the discussion and results chapter. There is also a need to develop new marketing methods. If tokopedia and shopee introduce the type or pattern of COD (Cash on Delivery) sales, it means that it will make it easier for buyers to be able to pay on the spot, but COD has drawbacks if the item that has been purchased does not match the buyer's expectations, the item may be returned or returned, this will definitely have an impact that is not good for the seller,

including losses in terms of shipping money. So that sellers or sellers can sell their goods through the largest application or platform by not activating the COD menu on their store platform. In this trumpet online store, it immediately provides convenience with menus of goods or musical instruments that can be selected in detail at relatively cheaper prices, from the survey results collected by the developer of the trumpet online store (11-15).

2. THEORY

Android is an operating system developed by Google for the purpose of building devices such as smartwatches, tablets and other devices, built using the linux kernel and customized with all needs such as email, navigation and email management, including in this article, specifically showing images in the form of musical instruments that can be selected quickly and instantly by customers, the price system is added with the calculation of taxes and shipping costs, making it transparent. android is built using java, kotlin, and C++ languages.

Moreover, Java is a commonly used programming language for developing Android applications, including for creating e-commerce programs. Java's performance in creating Android e-commerce programs can be considered excellent for several reasons: java has fast performance: Java is known to have fast and efficient performance, mainly because of the JVM (Java Virtual Machine) used to run Java code on Android devices. This is important in creating e-commerce applications [4,5,6,7,8,9], as the application must be able to handle many requests and transactions quickly and without lag. java is a multiplatform programming language: Java is also a multiplatform programming language, meaning that code written in Java can be run on various platforms, including Android. This allows developers to create e-commerce applications that can be accessed by users from different devices and operating systems. Java is easy to learn: Java is a relatively easy programming language to learn, especially for beginners who want to get started with Android app development. There are plenty of online resources and tutorials available to learn Java, and tons of Java libraries and frameworks that can be used to accelerate e-commerce application development. And Java has good security: Java has good security because of the security features integrated in the language. These security features are especially important in e-commerce applications, where users will be conducting online transactions and submitting sensitive information such as credit card information and other personal data.

Furthermore, here is an example of a java program for creating a class on the price list on e-commerce online sales.

```java
public class Product {
    private String name;
    private String description;
    private double price;
    private int stock;
    // Constructor
    public Product(String name, String description, double price,
int stock) {
        this.name = name;
        this.description = description;
        this.price = price;
```

```
            this.stock = stock;

        }


        // Getter methods
        public String getName() {
            return name;  }
        public String getDescription() {
            return description;  }
        public double getPrice() {
            return price;  }
        public int getStock() {
    return stock; }}
```

Moreover, A java program to calculate shopping total or cart.

```
        import java.util.ArrayList;
        public class ShoppingCart {
            private ArrayList<Product> items;
            // Constructor
            public ShoppingCart() {
                items = new ArrayList<Product>();    }
            // Add a product to the cart
            public void addProduct(Product product) {
                items.add(product);  }
            // Remove a product from the cart
            public void removeProduct(Product product) {
                items.remove(product);  }
            // Calculate the total price of all products in the cart
            public double getTotalPrice() {
                double totalPrice = 0;
                for (Product item : items) {
                totalPrice += item.getPrice();}
                return totalPrice; }}
```

Furthermore, Kotlin is a relatively new and increasingly popular programming language for Android application development, including e-commerce programming. Kotlin has several advantages that can affect the performance and quality of Android e-commerce applications, including: More concise code: Kotlin allows developers to write more concise and readable code compared to Java. This can speed up development time and reduce the number of errors that occur during development. Null safety: Kotlin features null safety, which allows developers to avoid bugs associated with null values. This can improve the stability and security of e-commerce applications. Interoperability with Java: Kotlin is designed for interoperability with Java, which allows developers to use existing Java libraries, and vice versa. This allows developers to utilize the vast Java ecosystem in the development of e-commerce applications.and Support from Google: Kotlin has been officially supported by Google as a programming language for Android

app development, which means that developers can expect good support from Google in the development of e-commerce apps that use Kotlin. next, this is Kotlin's program for e-commerce

```
import java.util.Scanner
 fun main(args: Array<String>) {
    val scanner = Scanner(System.`in`)
    print("Masukkan jumlah produk yang ingin dibeli: ")
    val quantity = scanner.nextInt()
    var totalPrice = 0
    for (i in 1..quantity) {
        print("Masukkan harga produk ke-$i: ")
        val price = scanner.nextInt()
        totalPrice += price}
    print("Total harga pembelian: $totalPrice")}
```

3. METHOD

The first step is to create the user interface (UI) that will be used on your online store application. For example, you can create a main page with a list of products, a product detail page, a shopping cart, and a checkout page. After that, create Java classes that will be used to organize the logic of your application, such as retrieving product data from the database, adding products to the shopping cart, and processing payments. Next, we can connect your online store application with your product database. You can use a web service or API to retrieve product data from the server. Then, create a function that allows users to add products to the shopping cart and checkout to complete the payment. After that, we can add additional features such as order and payment notifications, online payments using payment gateways such as PayPal or Stripe, and integration with delivery services. And finally we can publish your online store app to the Google Play Store for users to download and use.

Furthermore, Layout in Android refers to the way in which user interface (UI) elements are laid out or organized on the device screen. In Android application development, layouts are usually created using XML (Extensible Markup Language). XML is a markup language used to create document structures consisting of tags and attributes. In terms of layout, XML tags and attributes are used to define the position, size, appearance, and interaction between UI elements. Some layout types that are often used in Android are Linear Layout, Relative Layout, Constraint Layout, Table Layout, Frame Layout, and Grid Layout.
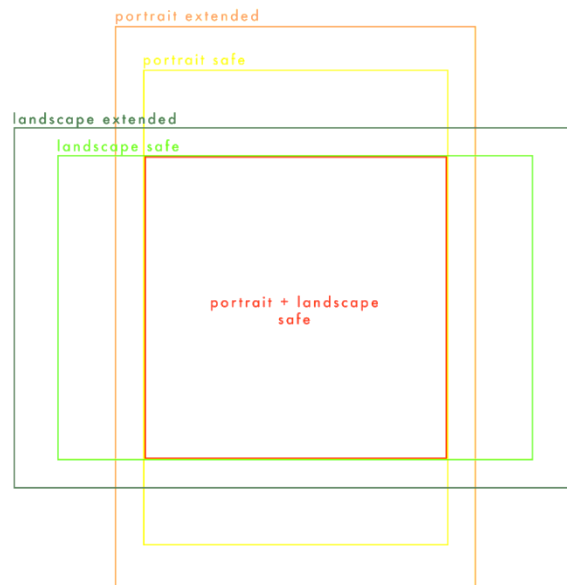
Fig.1. Layout Android design

Here are some examples of musical instrument categories used in the trumpet Music store, including:

- Stringed - such as violin, cello, and contrabass
- Wind - such as flute, clarinet, and trumpet
- Percussion - such as drums, maracas, and xylophone
- Keyboard - such as piano, organ, and synthesizer
- Electronics - such as mixers, DJ controllers, and drum machines
- Guitars - such as acoustic guitars, electric guitars, and basses
- Harmonicas - such as bearing harmonicas, chromatic harmonicas, and tremolo harmonicas

Moreover, about the Pricing of Musical Instruments on the App

- Guitar:
  - Acoustic Guitar (ranging from Rp 800,000 to Rp 10,000,000)
  - Electric Guitar (ranging from Rp 1,000,000 to Rp 20,000,000)
  - Bass (ranging from Rp 1,000,000 to Rp 15,000,000)
- Keyboards:
  - Portable Keyboards (ranging from Rp 2,000,000 to Rp 15,000,000)
  - Electronic Keyboard (ranging from Rp 10,000,000 to Rp 50,000,000)
- Stringed:
  - Violin (ranging from Rp 2,000,000 to Rp 50,000,000)
  - Cello (ranging from Rp 5,000,000 to Rp 100,000,000)
  - Contrabass (ranging from Rp 20,000,000 to Rp 150,000,000)
- Wind:
  - Flute (ranging from Rp 500,000 to Rp 5,000,000)
  - Clarinet (ranging from Rp 2,000,000 to Rp 20,000,000)
  - Trumpet (ranging from Rp 3,000,000 to Rp 25,000,000)

- Percussion:
  - Drum Set (ranging from Rp 3,000,000 to Rp 30,000,000)
  - Cajon (ranging from Rp 1,000,000 to Rp 5,000,000)
  - Xylophone (ranging from Rp 5,000,000 to Rp 50,000,000)
  - for some types of electronic musical instruments:
- Mixer:
  - Analog mixer (ranging from Rp 1,500,000 to Rp 20,000,000)
  - Digital mixer (ranging from Rp 5,000,000 to Rp 100,000,000)
- DJ Controller:
  - DJ controller (ranging from Rp 2,000,000 to Rp 30,000,000)
  - Drum Machine:
  - Drum Machine (ranging from Rp 3,000,000 to Rp 50,000,000)
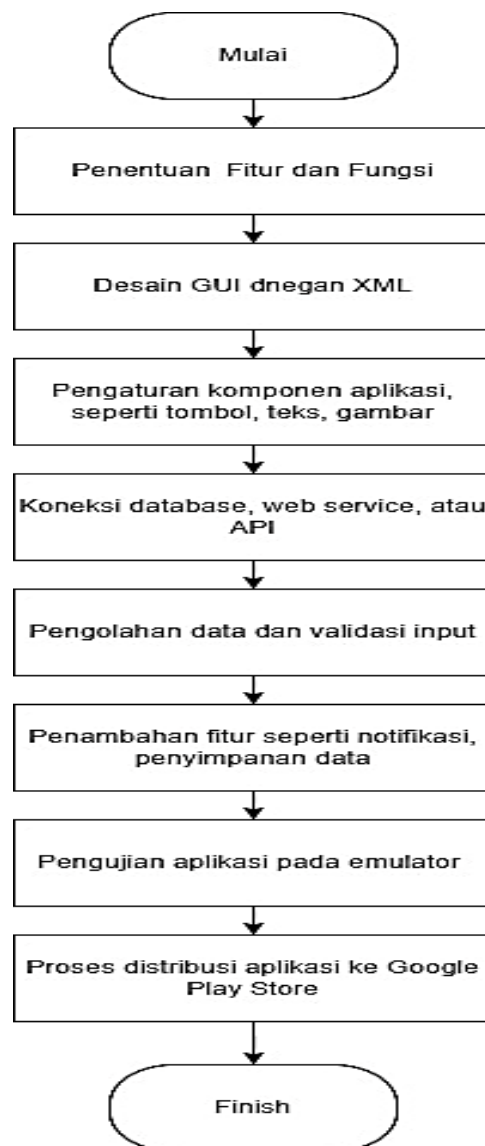
Fig.2. Flowchart of android program creation system
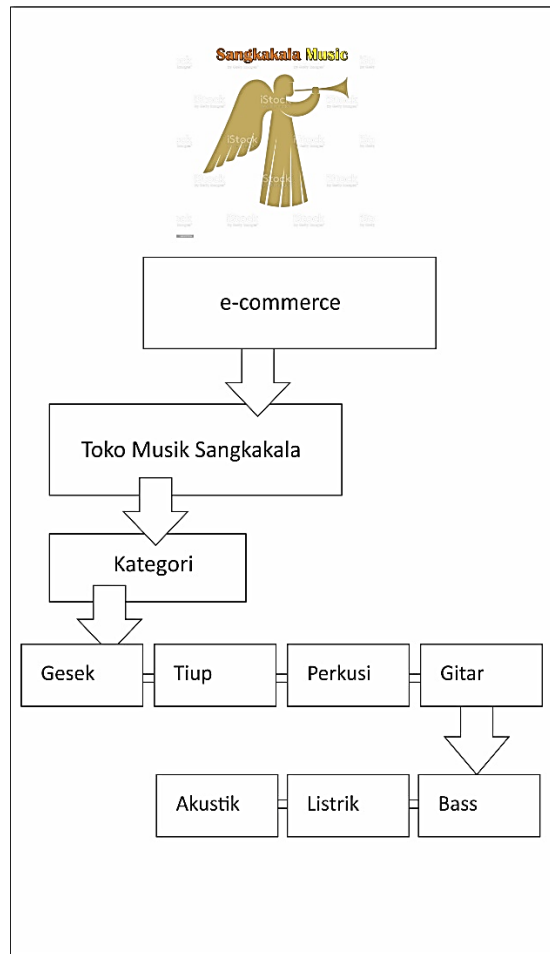
Fig.3. Category

4. RESULT AND DISCUSSION

The first step is to choose the biground according to the theme that you want to take for making this Android-based system. As shown in the following image.

Fig.4. Design chosen for the biground

Fig.4. Design of the trumpet music store application on the phone

Fig.5. Trumpet Icon Display
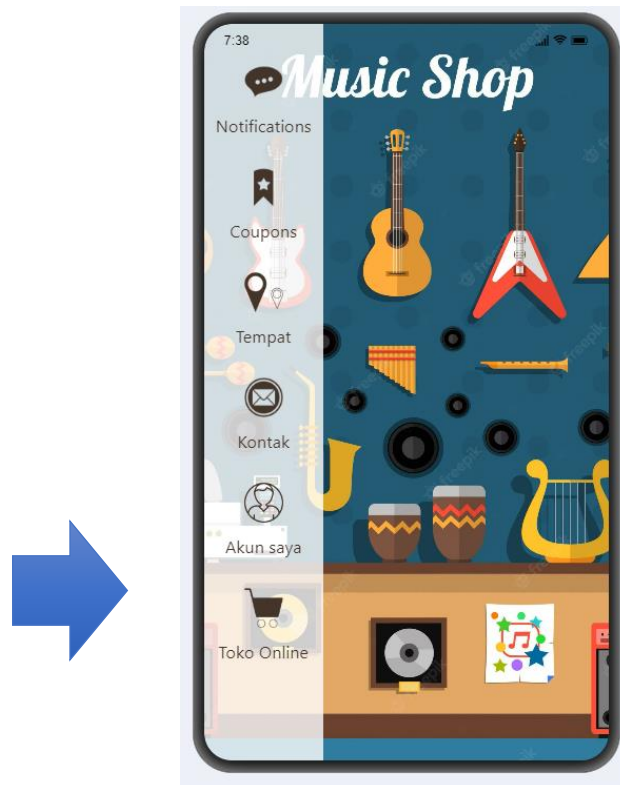
Fig. 6. Menu display of Sangkakala online store

To create the menu in Figure 5 & 6, create a menu_main.xml file in the res/menu/ folder.

```xml
<menu
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item
        android:id="@+id/action_search"
        android:icon="@android:drawable/ic_menu_search"
        android:title="@string/search"
        app:showAsAction="always" />
    <item
        android:id="@+id/action_settings"
        android:icon="@android:drawable/ic_menu_preferences"
        android:title="@string/settings"
        app:showAsAction="never" />
</menu>
```
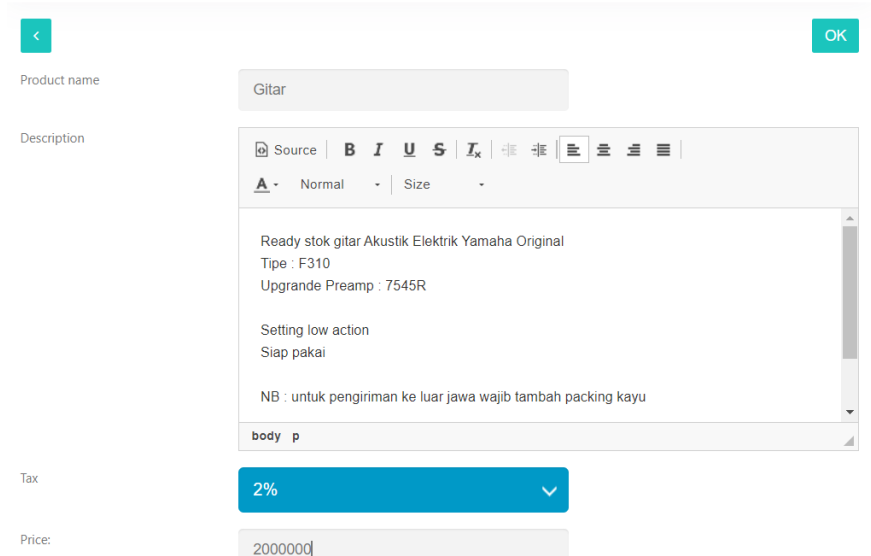
Then, on the activity that you want to add a menu to, call the onCreateOptionsMenu() method and inflate the menu_main.xml file that was created earlier.

```
override fun onCreateOptionsMenu(menu: Menu):
Boolean {
    menuInflater.inflate(R.menu.menu_main, menu)
    return true }
```


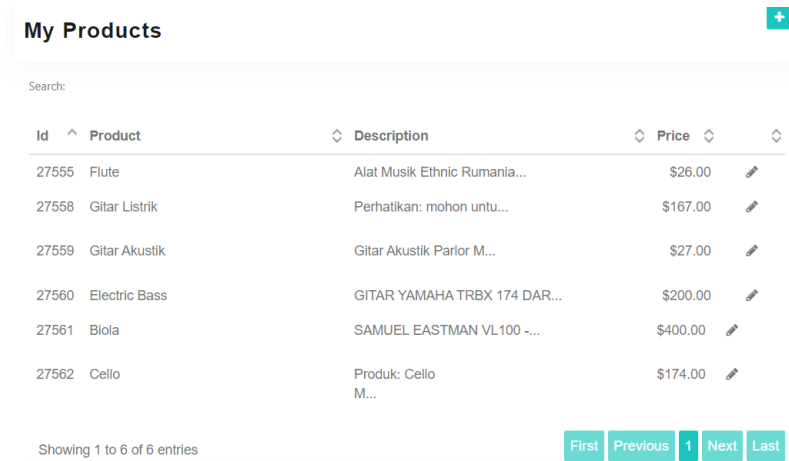**Fig. 7**. Add the Product

Fig 8. Product list (musical instruments by category)
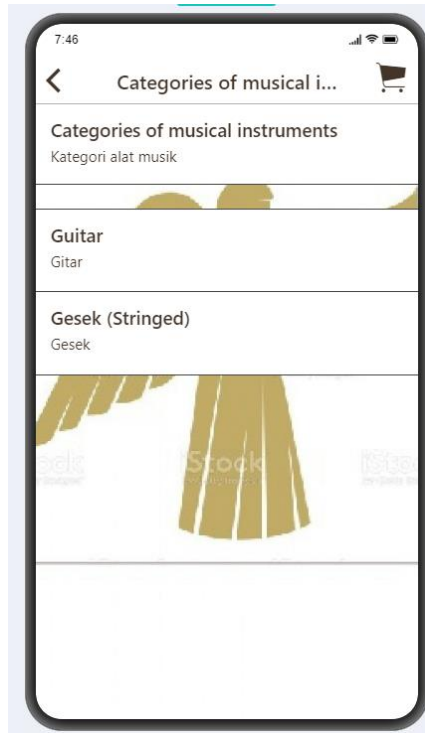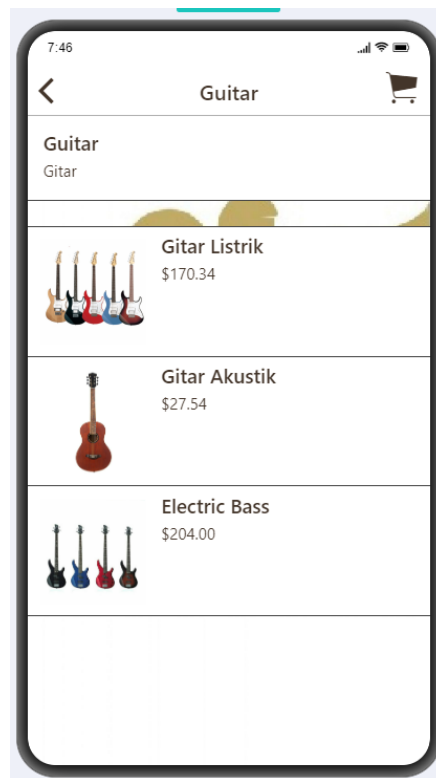
Fig.9 Category Menu

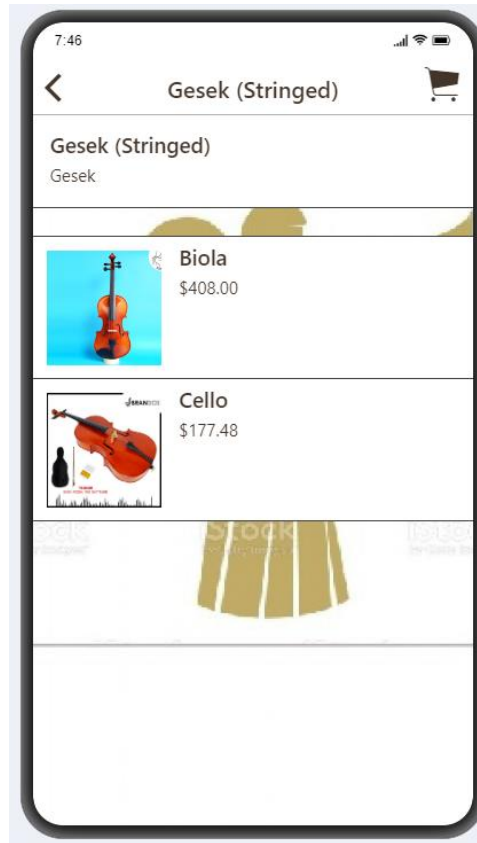**Fig.10.** Guitar category menu
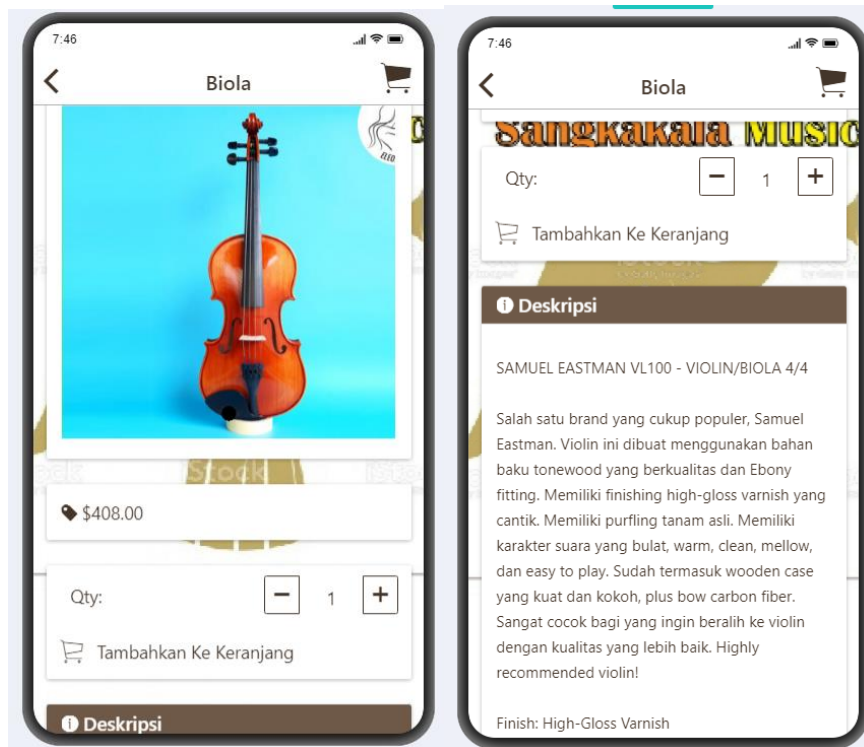
Fig.11. Swipe Category Menu
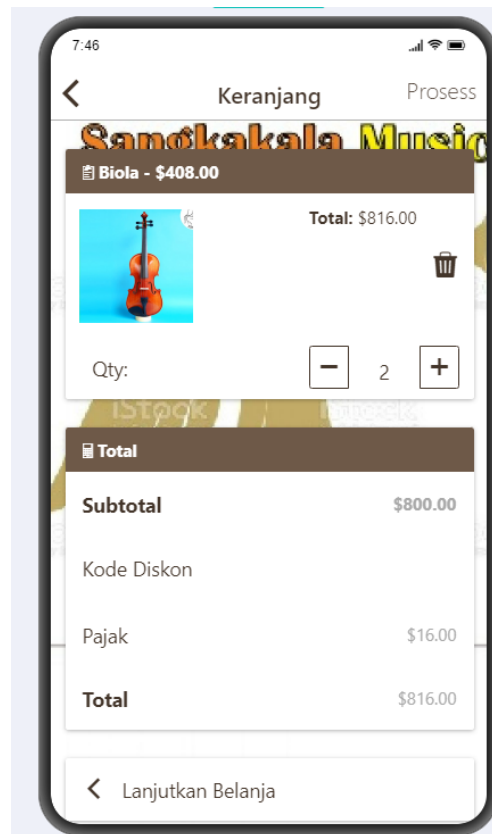

Fig.12. Swipe music Category Menu

Fig.13. Shopping cart menu

5. CONCLUSION

The Android-based musical instrument sales application is very beneficial for sellers or stalls, rather than just a conventional store, while for buyers, it is flexible if they can shop via online media from home, it will be faster and more efficient, this program has been applied to the sangkakala shop, and will be registered in PlayStore. The advantage of online sales mode is that it is able to increase income for the seller or seller side. Android applications are also compatible on various platforms except iOS mobile. It is hoped that this smart sales system will be able to provide benefits and convenience for consumers, producers, and sellers. This program is far from perfect and can continue to be developed for the world of software development, especially the Android Platform.

AUTHOR CONTRIBUTIONS
All Author is responsible for building Conceptualization, Methodology, analysis, investigation, data curation, writing—original draft preparation, writing—review and editing, visualization, supervision of project administration, funding acquisition, and have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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