

Mobile App Development

Cash Register App

Project 1

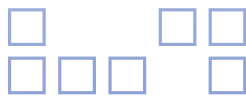


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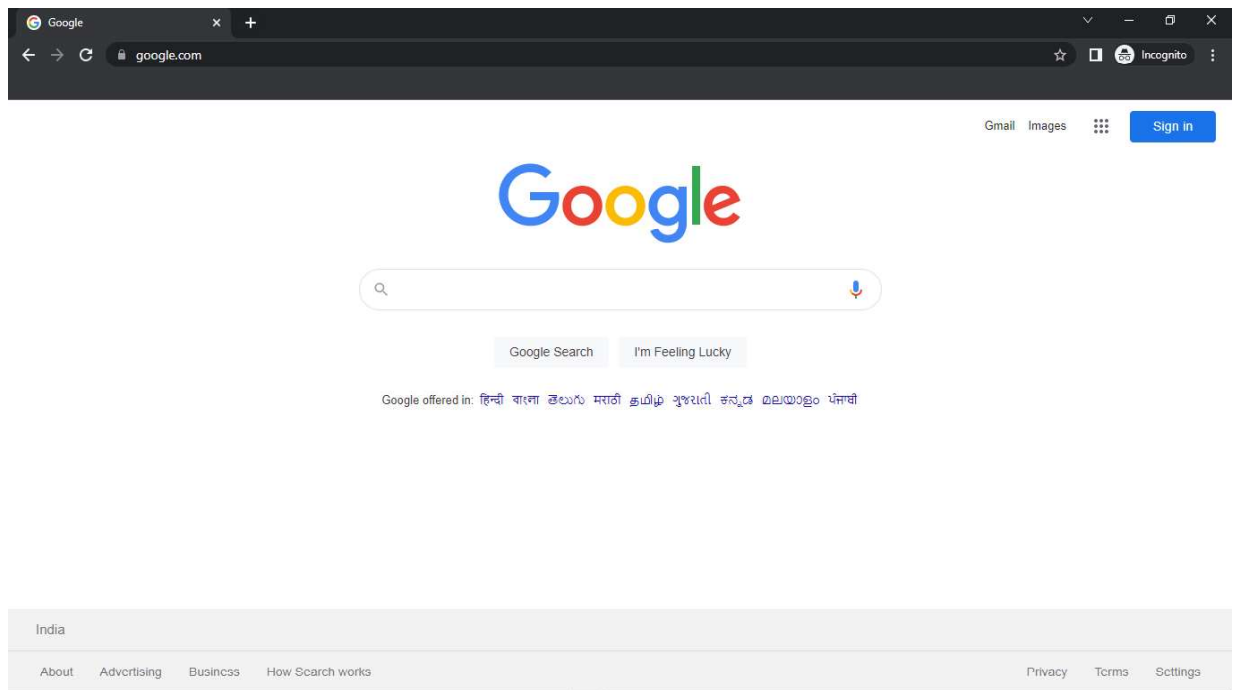
Mobile App Development

Project 1: Cash Register App

In this project, you will explore the basic concepts of App development by building a Cash register App that can support the small grocery stores/department stores to record the transactions, keep a track on the stock available and also prepare a bill. Exciting? Let's get started!

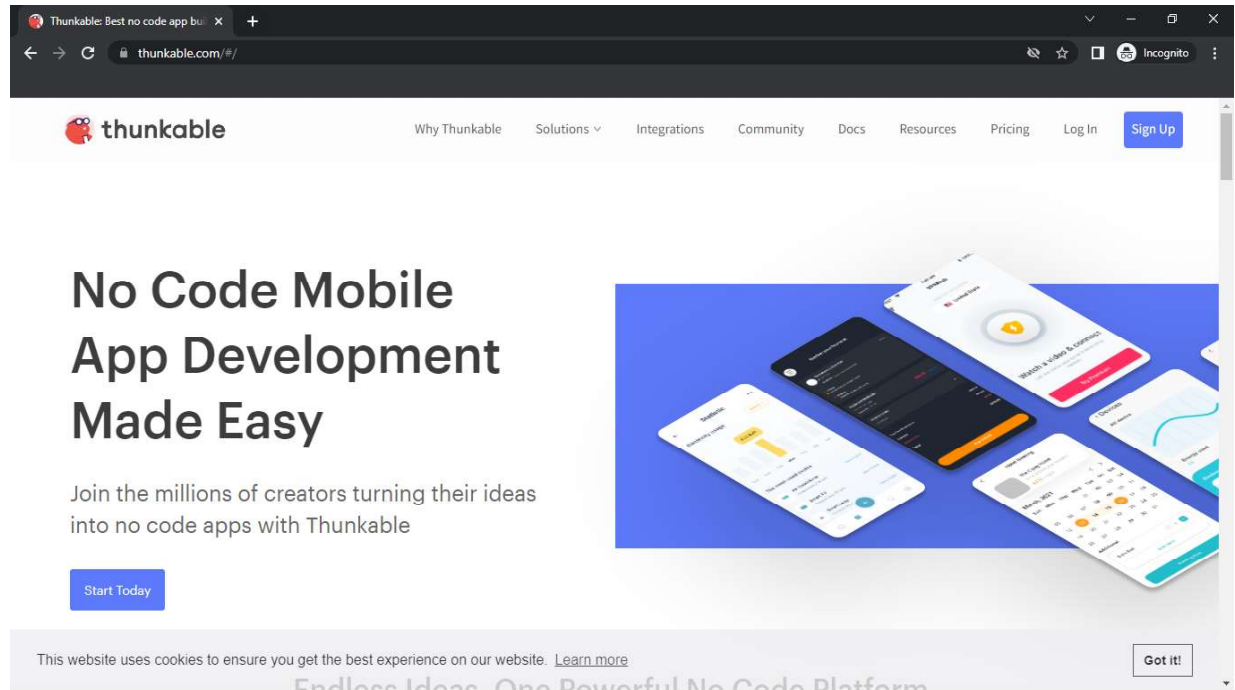
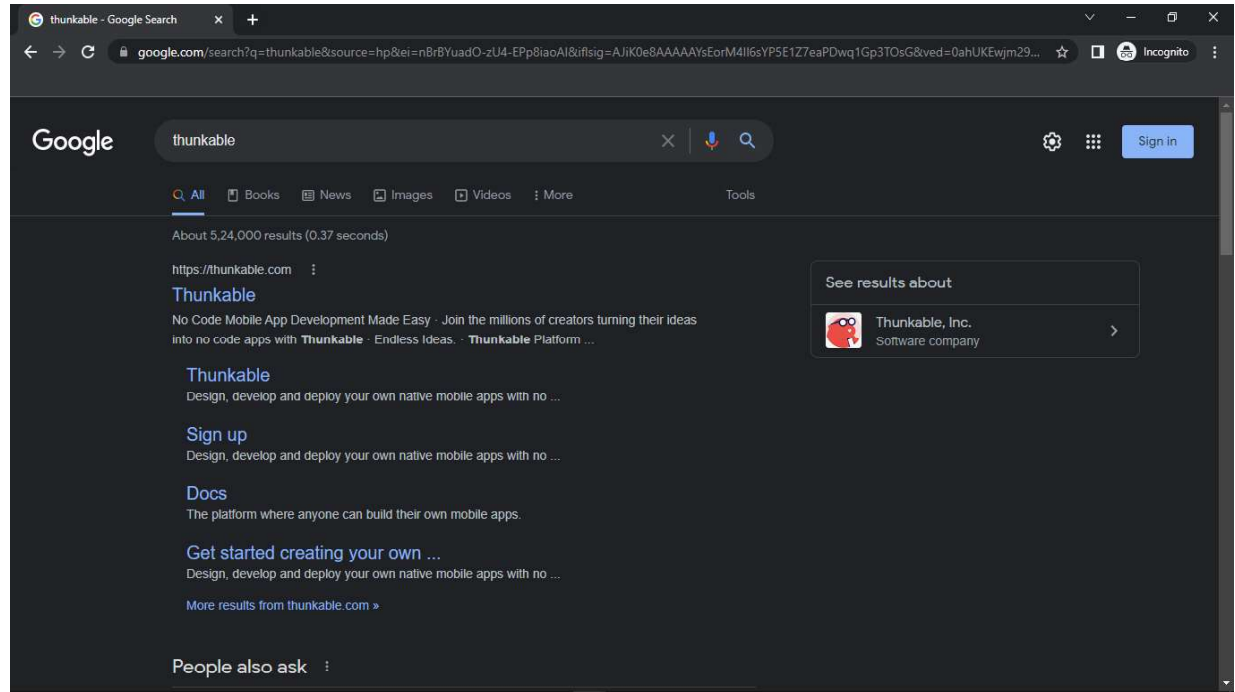
Step 1

Open any of the web browsers on your laptop. Then open the google search engine.



Step 2

Search for “Thunkable” and then click on the first result. You may also enter the url “https://thunkable.com/” then you are redirected to the Thunkable website.

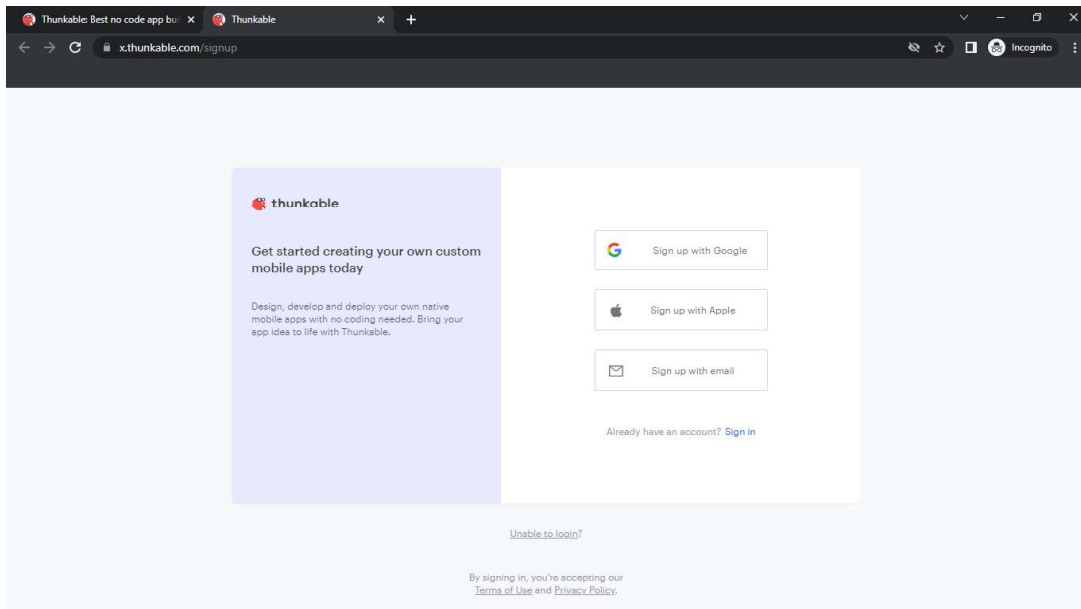


Mobile App Development - Cash Register App

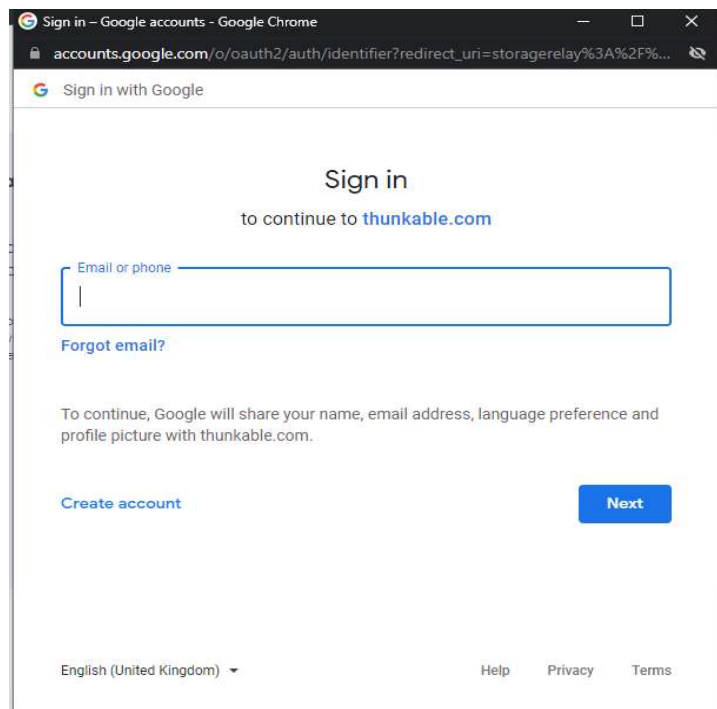
Step 3

Let us sign-in to the Thunkable website.

Click on the “Sign in” button which is present on the right side top corner.

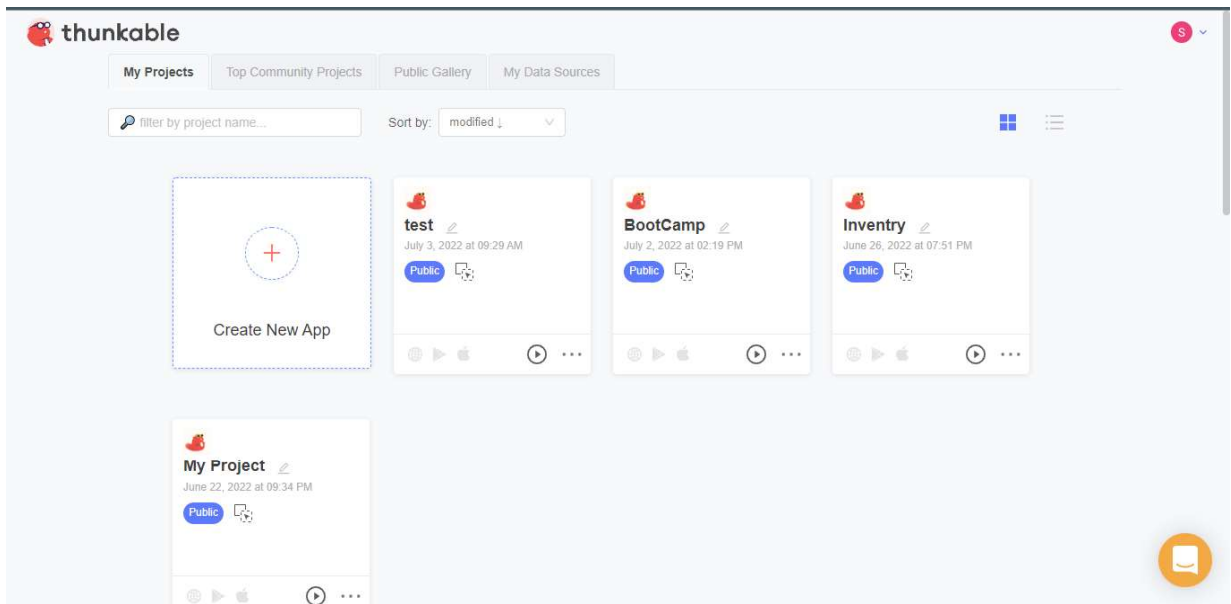


Then, click on the “Sign up with Google” option and enter your google account details like Email ID and Password.



Step 4

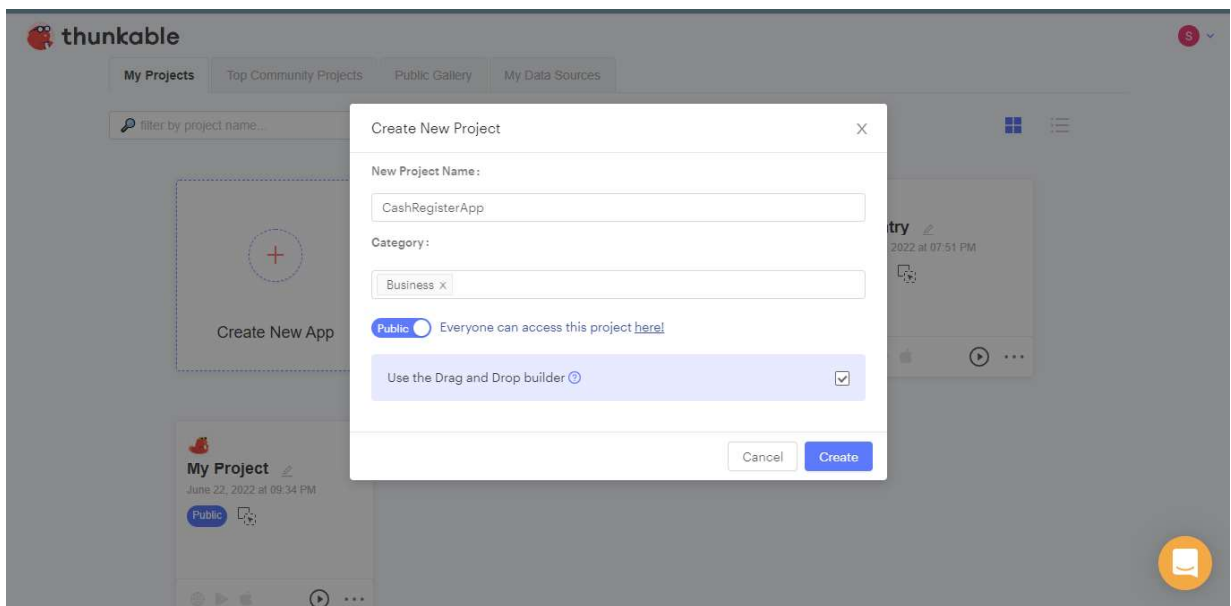
After entering your google details your profile is created and the interface looks like this.



Step 5

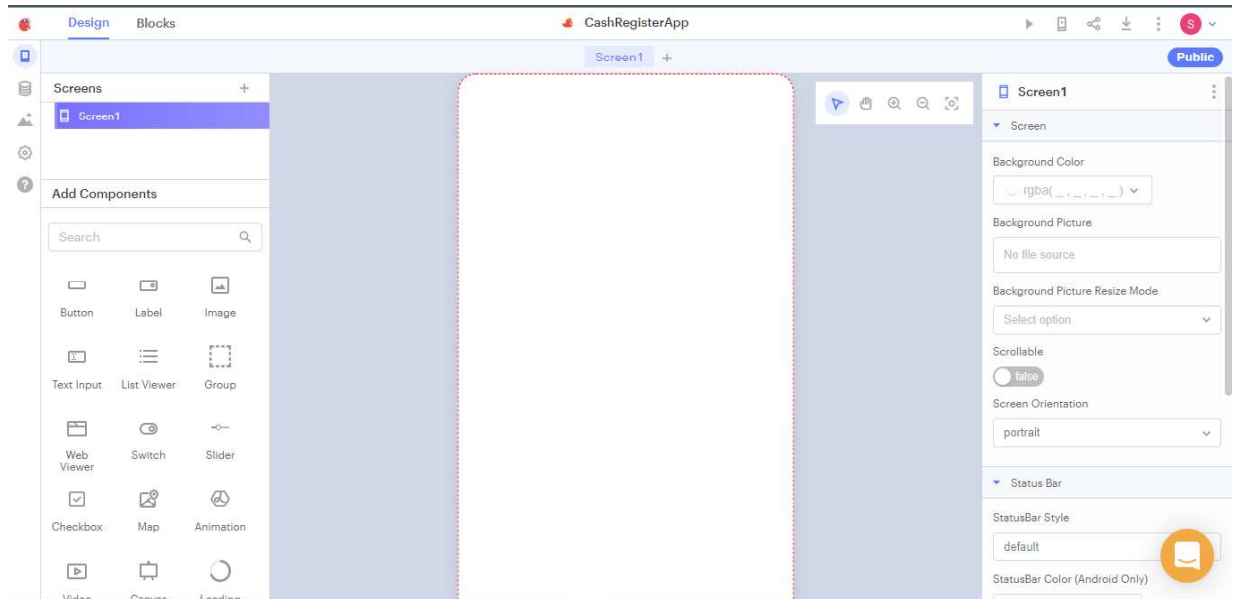
Now let's create a new project.

Click on the "Create New App" button then you are asked to give the details of the project. Enter the details as shown in the image given below.



Mobile App Development - Cash Register App

Then the app development interface looks like this



PART 1 – Building the Login Interface

Step 6

Let's set the background and other details of the app.

Let's enter the name of the screen from the properties panel on the right, since this is login screen of the app we will name the screen as "Login_screen". Then choose the background colour as green and then set the transparency to 50 as shown in the figure.



Step 7

The first screen is the welcome screen where the user can login into the app. Now let's add a welcome note to our app

Go to the "Add Components" panel, then drag and drop a "Label" in the middle of the screen.

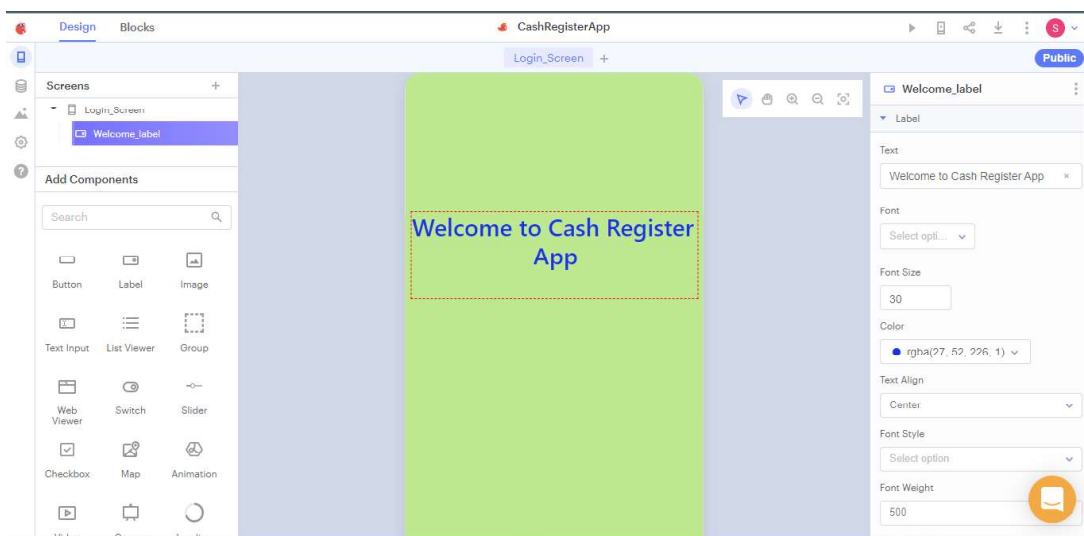


Now let's edit the details of the Label

Go to the properties panel and change the label name to "Welcome_label".

Then change the text to "Welcome to Cash Register App", then change the font size to "30" and color to blue.

Then change the text align to "Center" and font weight to "500"

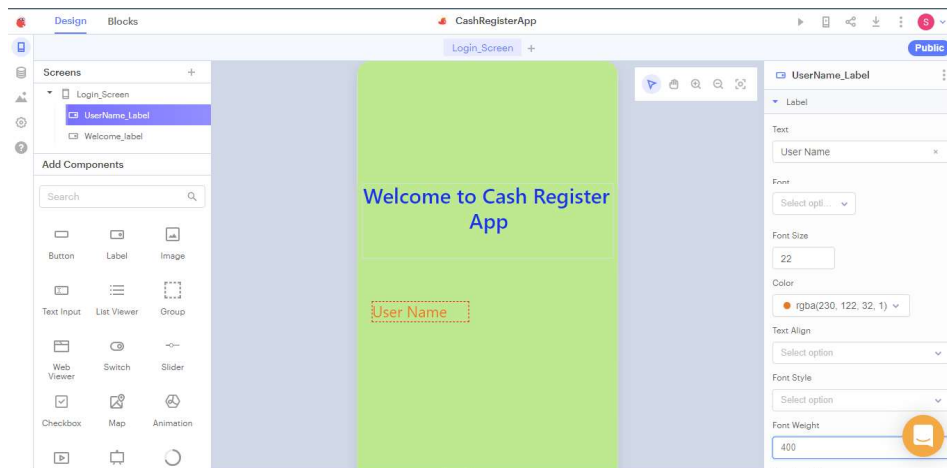


Step 8

Now let's create the textboxes for entering the username and password

Go to add components panel, drag and drop a "Label" in the middle of the screen. Then rename the label as "UserName_Label". Then change the text to User Name.

Now change the font size to "22" and the color to orange.



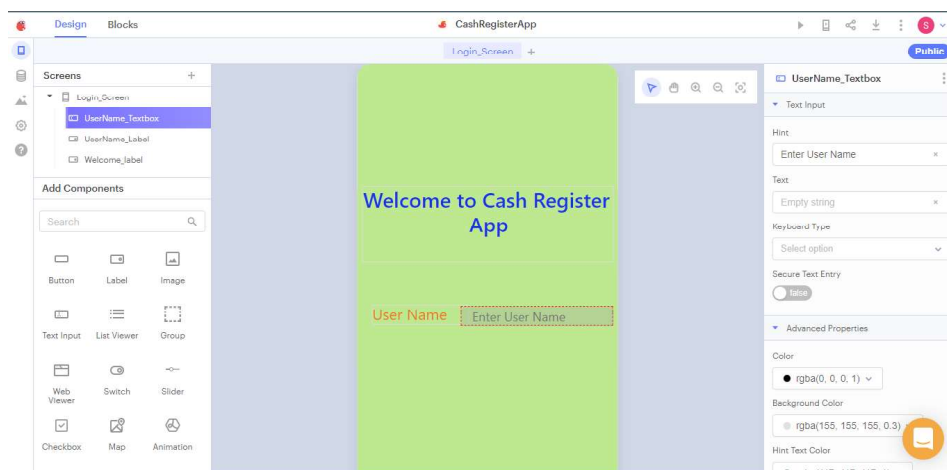
Step 9

Let's add a textbox for entering the Username.

Go to "Add Components" panel, then drag and insert the "textbox" beside the "UserName_Label".

Then change the name of the text box to "UserName_textbox".

Then change the Hint to "Enter User Name" and then adjust the position of the textbox as shown in the image.

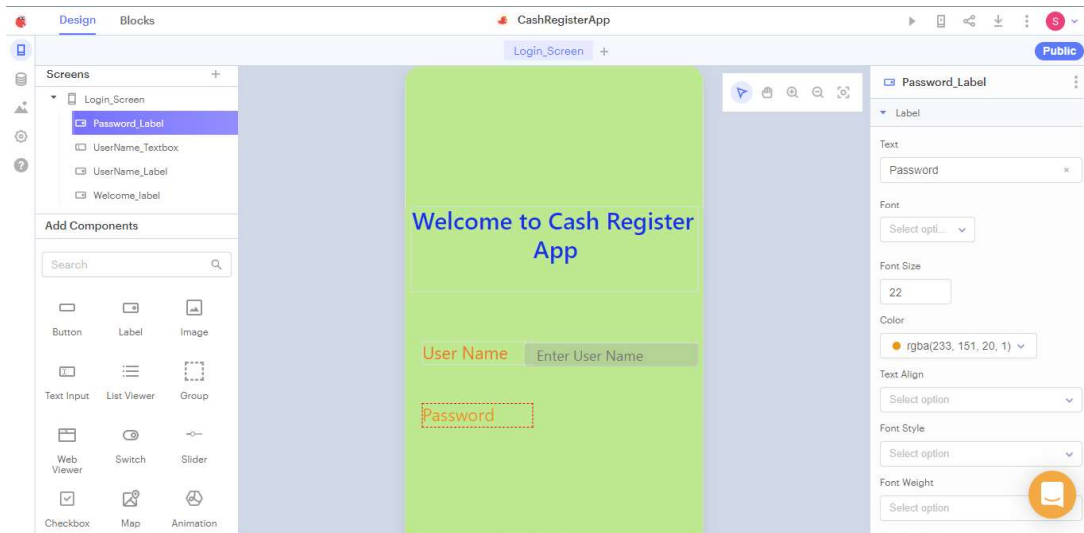


Step 10

Let's add the label and text box for entering the password.

Now, try this on your own by repeating the steps 8 and 9.

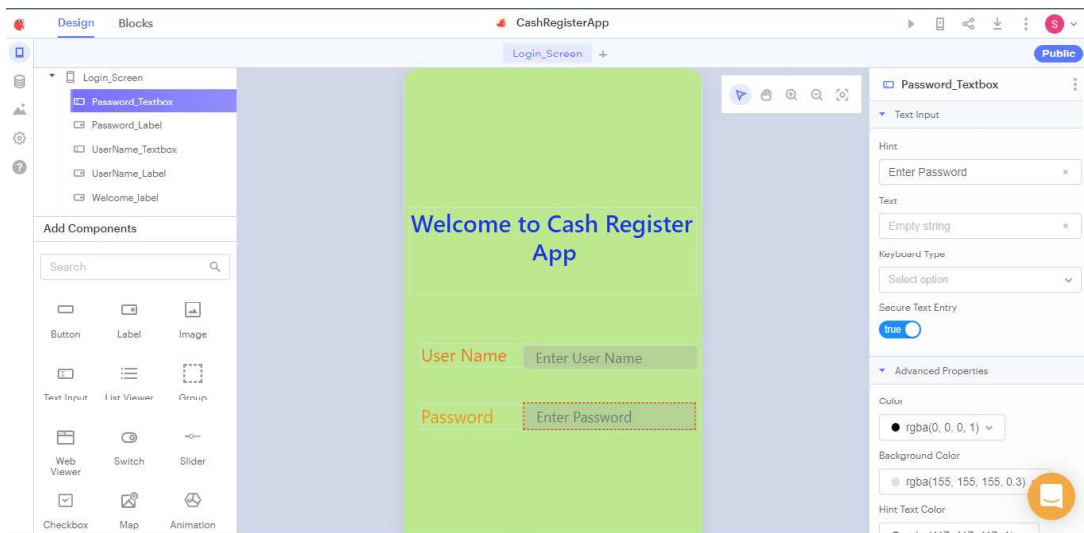
Hint: Drag and drop a label below the Username label. Then change the name to "Password Label" and the colour to orange and font size to 22.



Now let's add the Textbox for Password.

Drag and drop a textbox beside the password label. Then change the name of the Textbox to "Password_textbox"

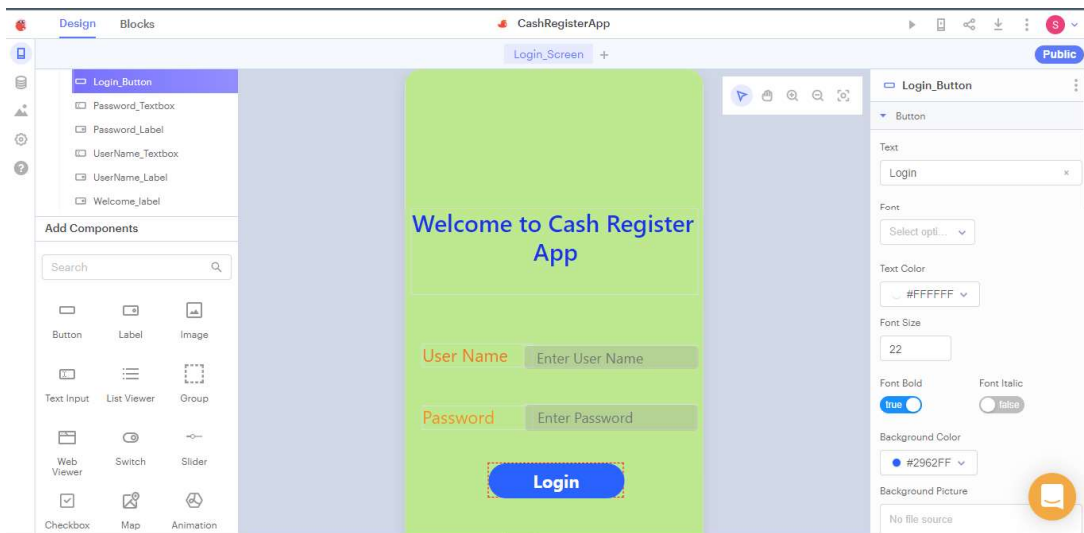
Since it is a Password entry we will enable the secure text entry.



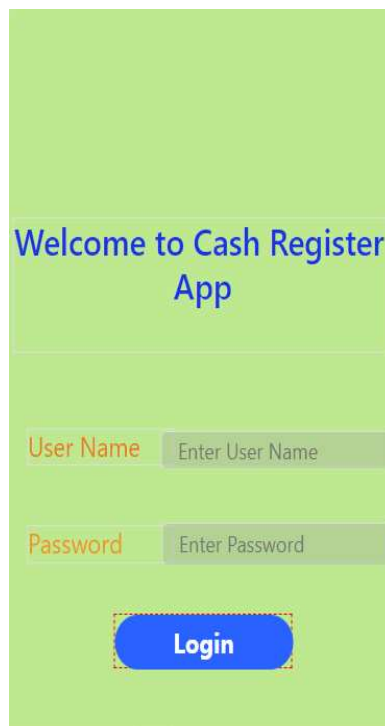
Step 11

Now let's add a Login Button.

Drag and drop a button from the add components panel. Go to the properties panel and change the button name to "Login_Button." Change the text to Login, font size to 22 and enable the font to bold.



We have successfully built the Login interface.



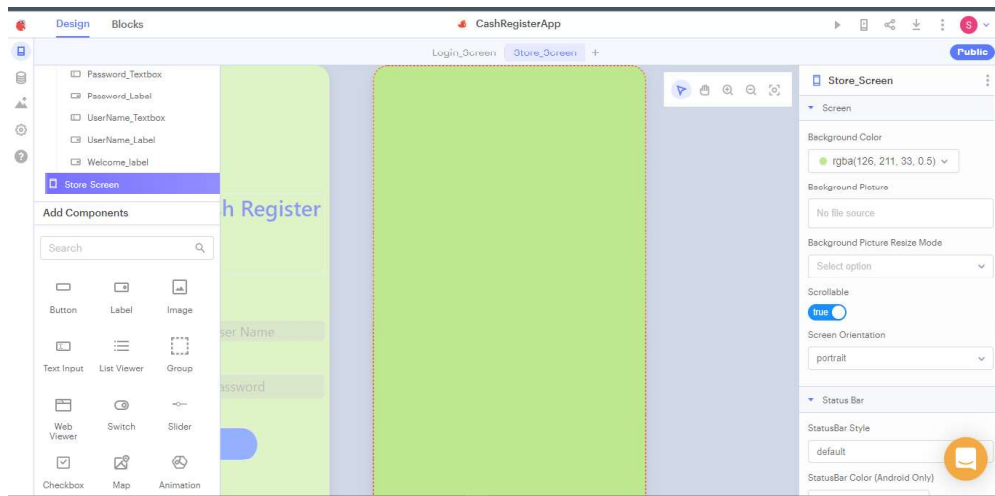
PART 2 – Adding the second screen – Store Interface.

Step 12

Lets create a new screen for the Store.

Click on the “+” icon on the top middle of the screen, beside the Login_screen.

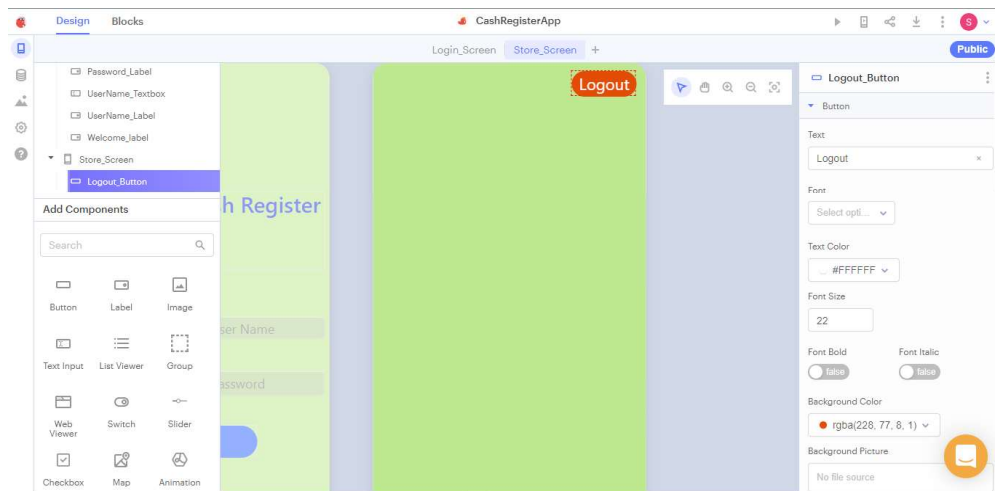
Rename the screen as “Store_Screen”. Then change the color to green and enable Scorable.



Step 13

Now let's add a logout button. Drag and drop a button in the middle of the screen then adjust the position to the top right corner.

Then rename the button as “Logout_Button.” and enter the text as “Logout,” change the font size to “22” and color to “Red.”

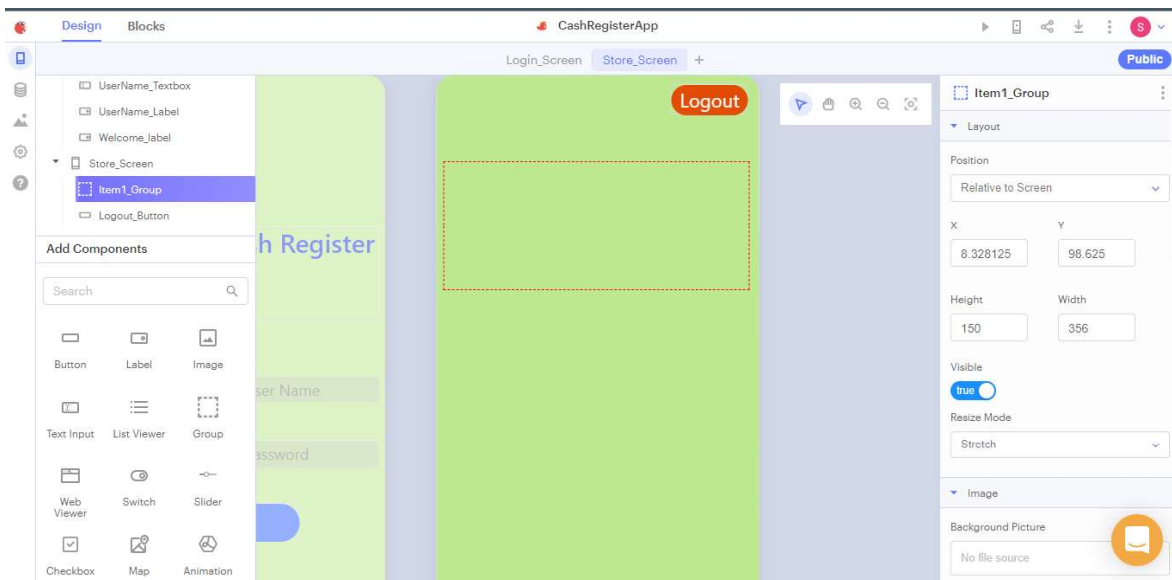


Step 14

Now let's add the Grocery list.

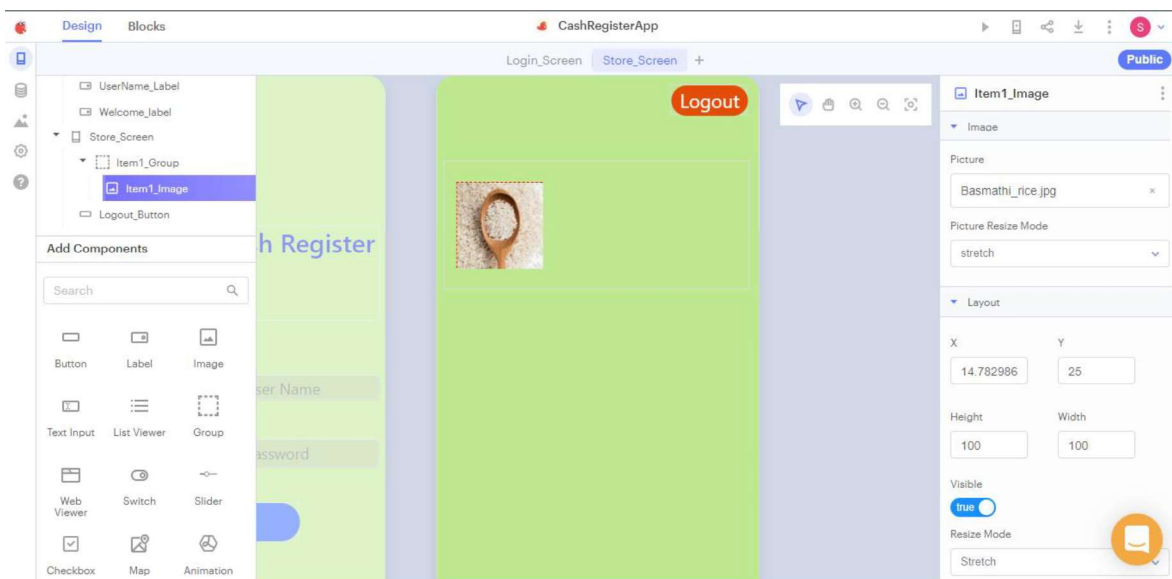
Select the group function from the "Add Components". Drag and drop a Group from the Add components panel in the middle of the screen.

Then stretch it to both left and right ends of the screen. Then rename it as "Item-1_group"



Now, drag and drop an image from the "Add Components" and rename it as "Item1_image." Then upload an image of rice, by clicking on picture and upload button.

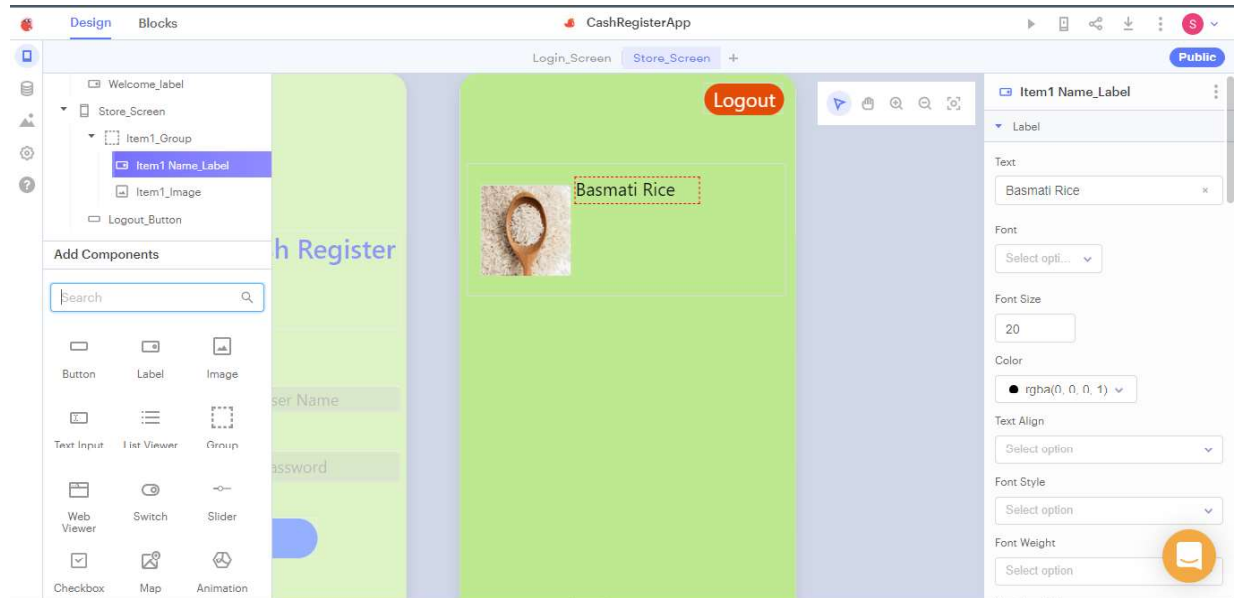
You may search on google download the image and then upload it here.



Step 15

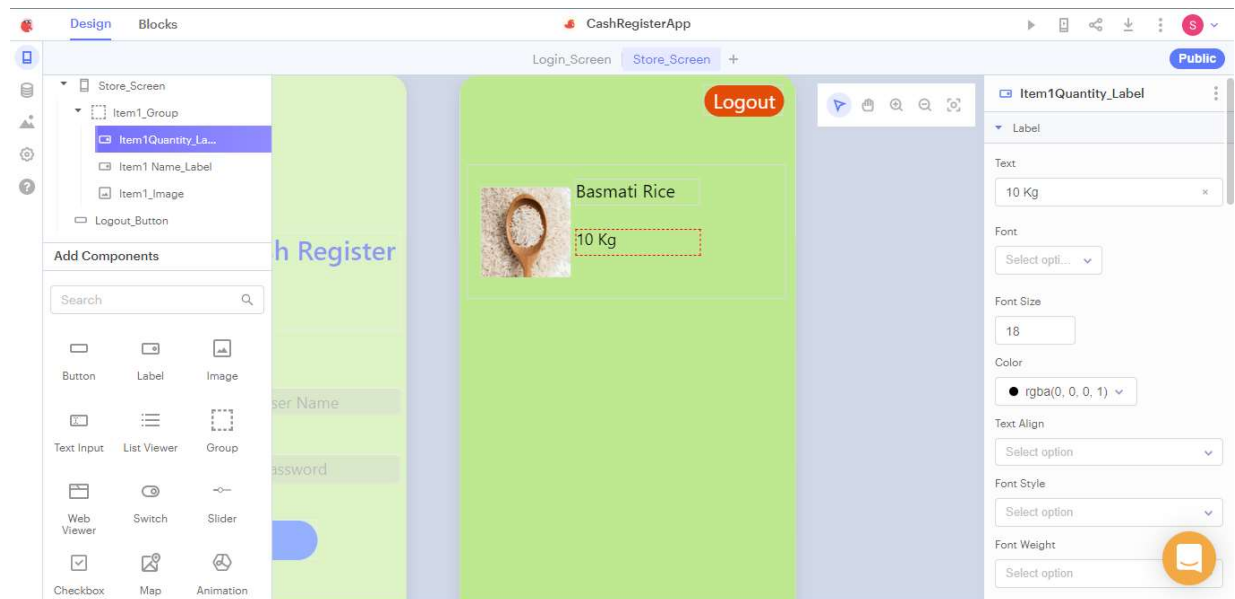
Let's add the details of the item which is rice in our case.

Drag and drop a Label in the middle of the Item1 group and change the name to "Item1Name_Label" Then enter the text as "Basmati Rice" and change the font size to 20.



Now let's add the available Quantity.

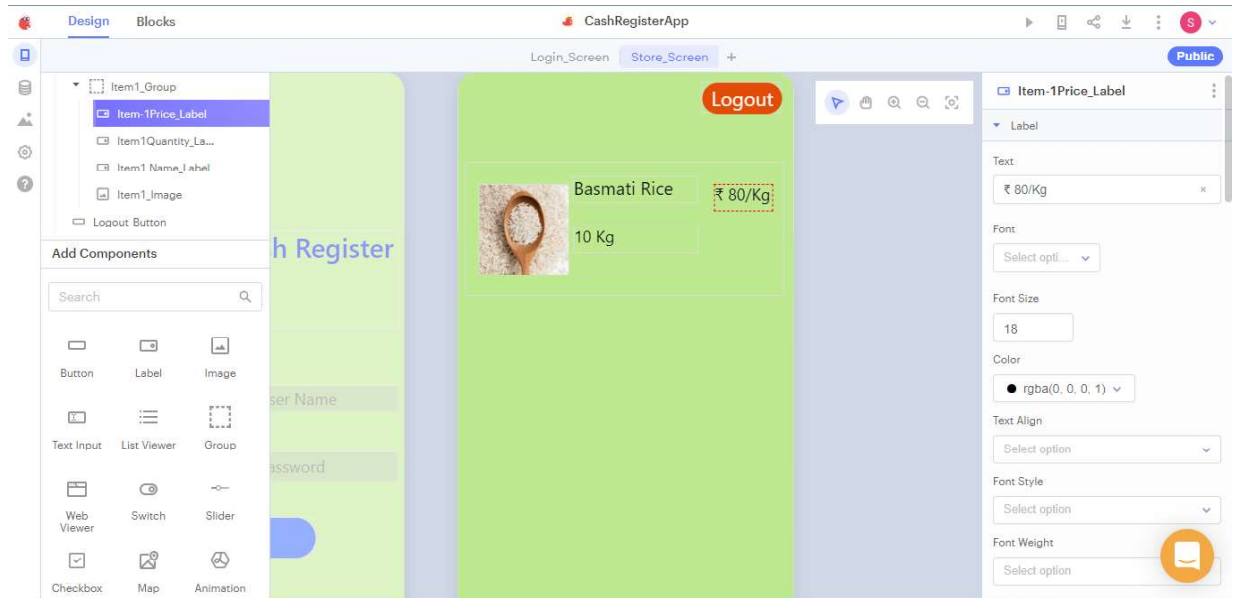
Drag and drop a label in the middle of the Group and change the name to "Item1Quantity_label". Then enter the text as 10 Kg.



Step 16

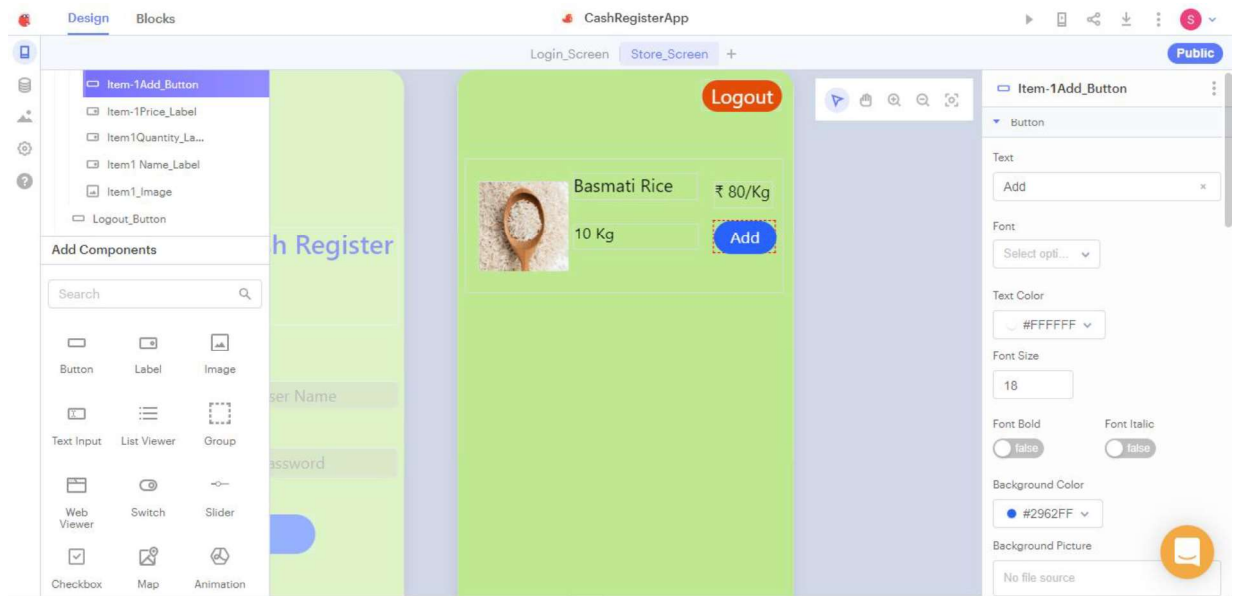
Now let's add the price label.

Drag and drop a label in the middle of the Group and change the name to "Item1Price_label". Then enter the amount as 80/Kg



Now let's add a button. Drag and drop a button in the group and then rename it as "Item1Add_button". Enter the text as Add.

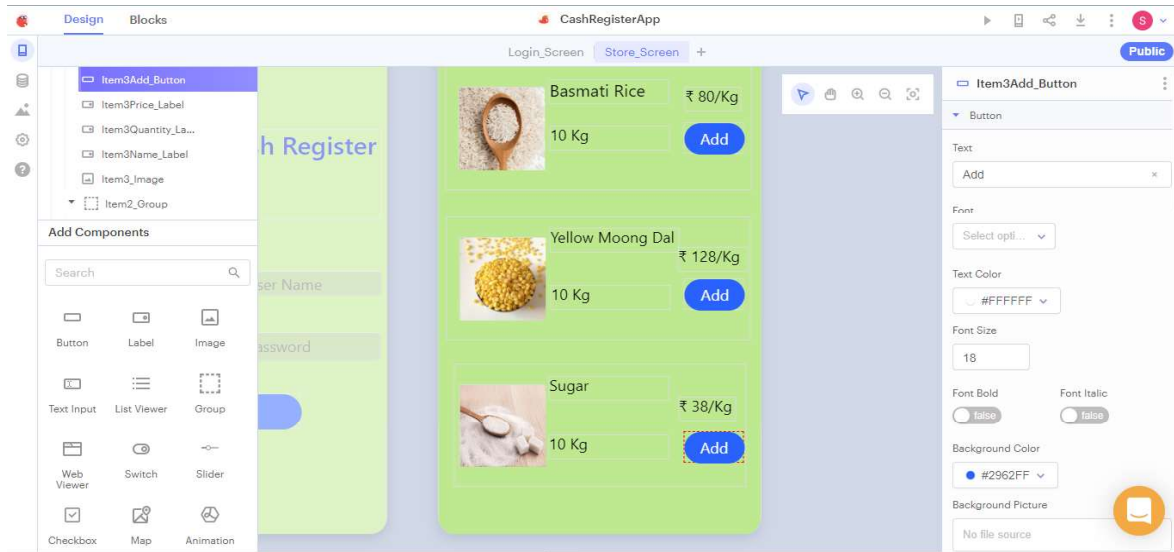
If you observe we have completed creating a list item which has an image, price of the item and also a button to add the item.



Step 17

Now let's add 2 more items onto the store screen. Repeat the steps 15 & 16 and add the item2 and item3.

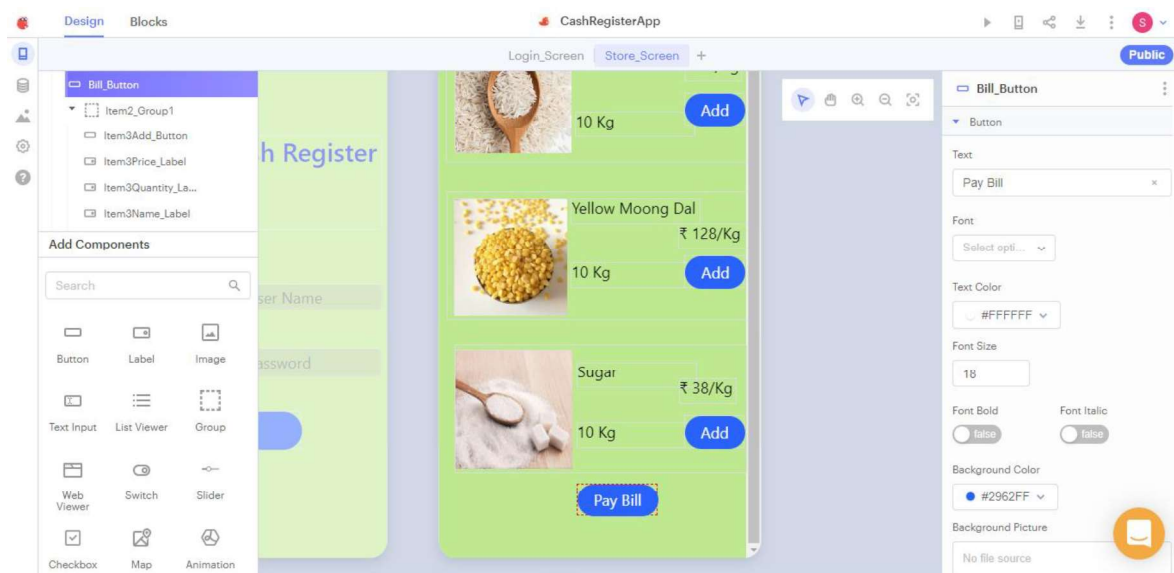
After adding all the 3 items your screen should match the image given below.



Step 18

Now let's add a pay bill button.

Drag and drop a button from the components tool bar below the item3 group. Then change the name of the button to "Bill_button" and change the text on the button to "Pay Bill".

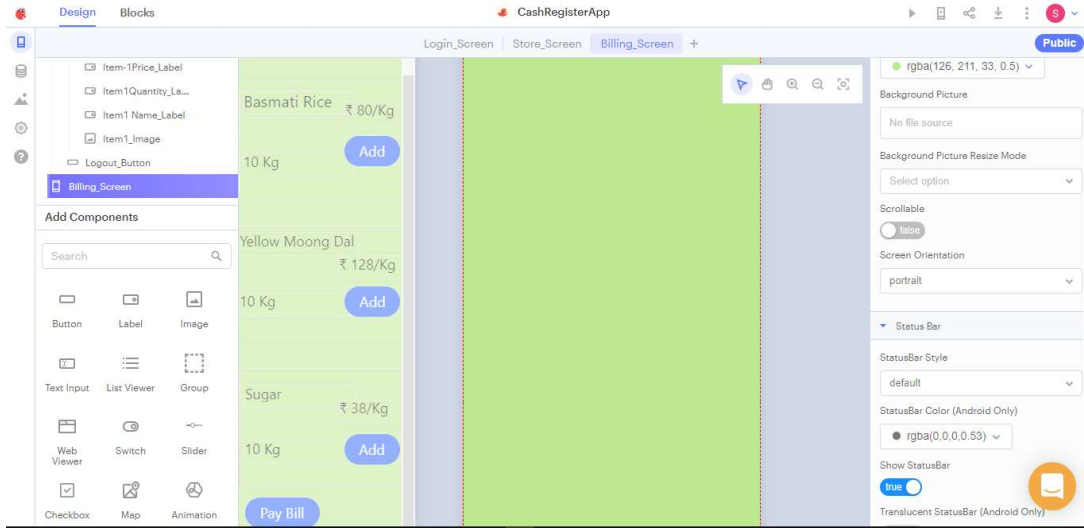


PART 3 – Adding the third screen – Billing Interface

Step 19

Let's add Billing Screen.

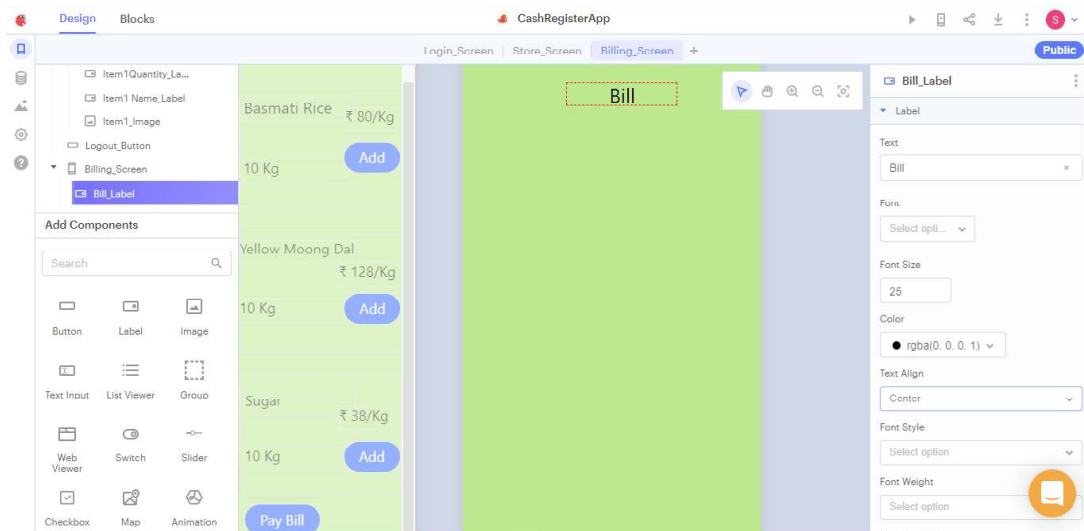
Click on the + icon which is present on the top-middle of the screen. Then name the screen as "Billing_Screen" and change the background colour to green.



Step 20

Let's add a label for the bill.

Drag and drop a label in the middle of the screen. Then name it as "Bill_Label" enter the text as Bill and align the text to the centre.

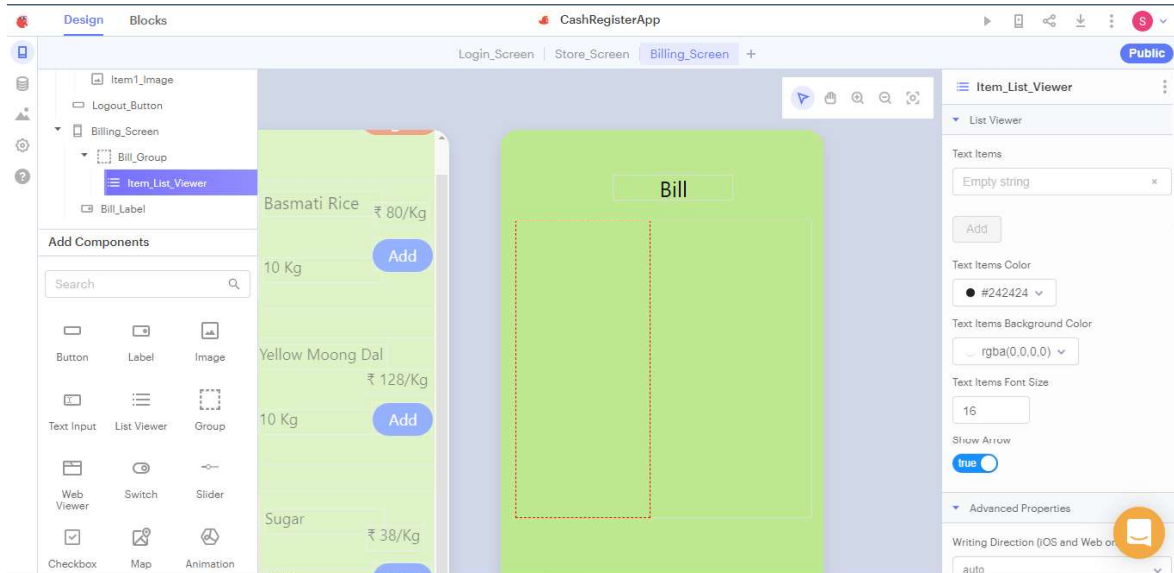


Step 21

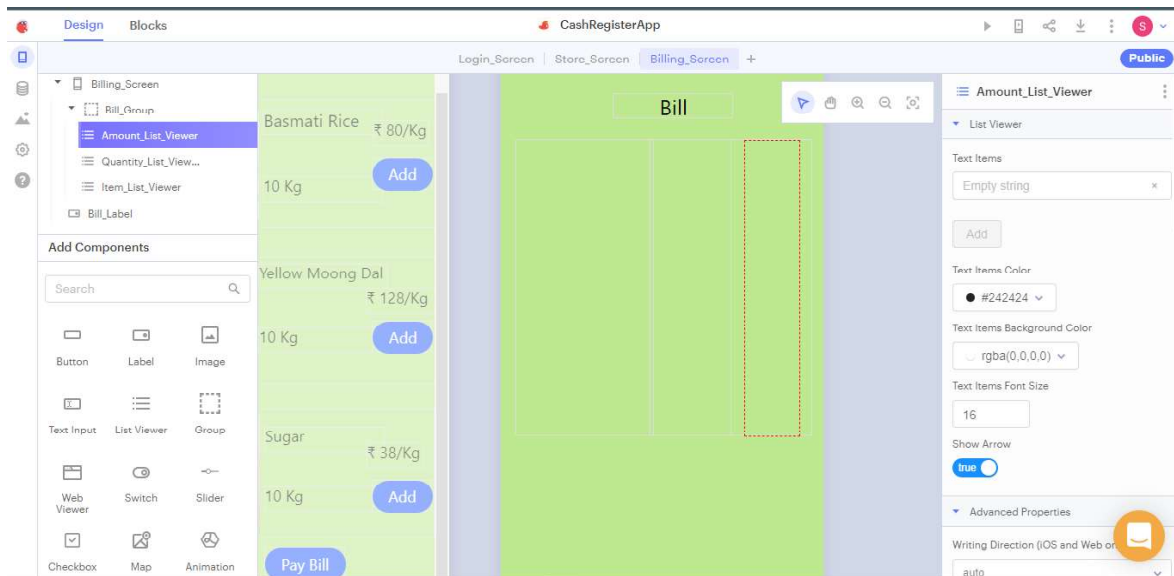
Let's add a group for creating the bill.

Drag and drop a group in the middle of the screen. Then drag it till the edges of the screen and change the name of the group to the "Bill_Group"

Now drag and drop a List viewer from the "Add components" in the middle of the group. Change the name of the List Viewer as "ItemLISTER viewer"



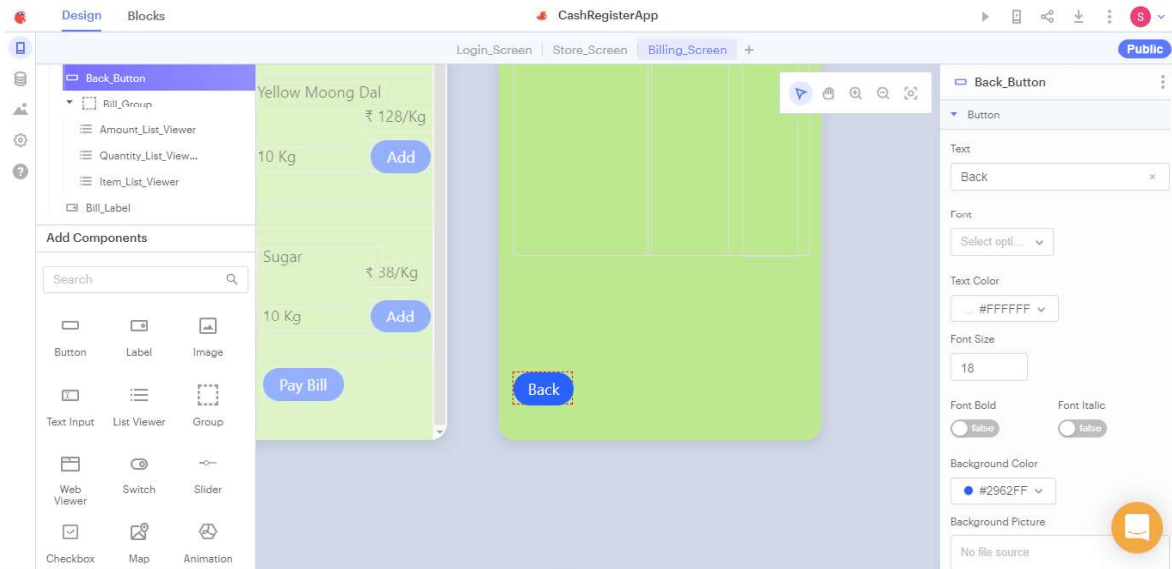
Let's add two more list viewers for the item quantity and price. Drag and drop two more list viewers in the group and name them as "quantity list viewer" and "Amount listviewer".



Step 22

Now let's add a back button. Drag and drop a button below the group and change the name of the button to "Back_Button".

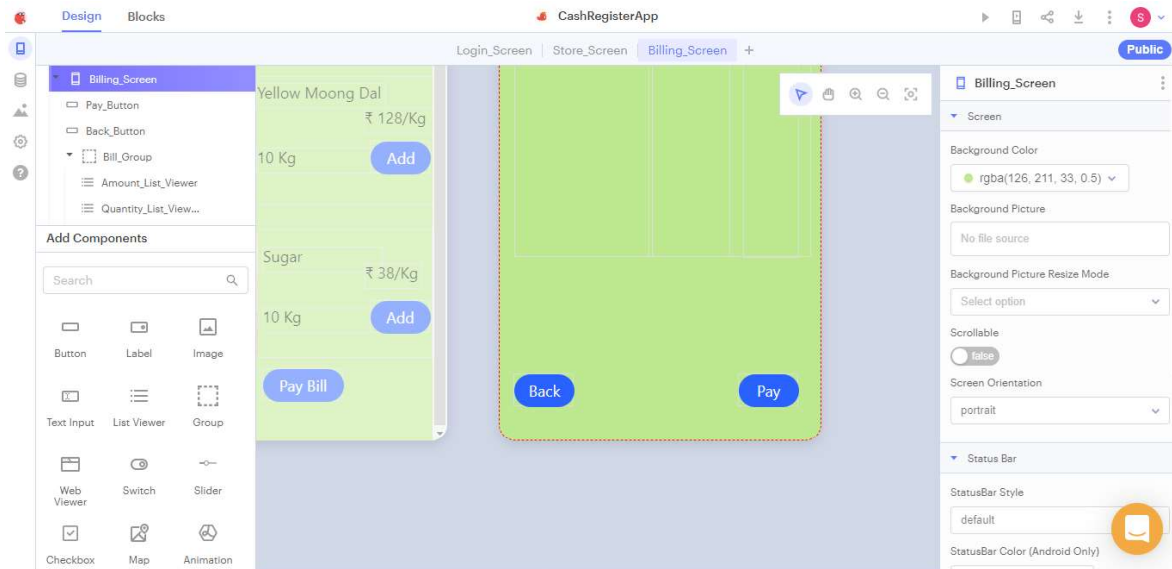
Change the text to "Back" as shown in the image.



Step 23

Now let's add a button for the payment.

Drag and drop a button in the middle of the screen. Change the button name to "Pay". Enter the text as "Pay".

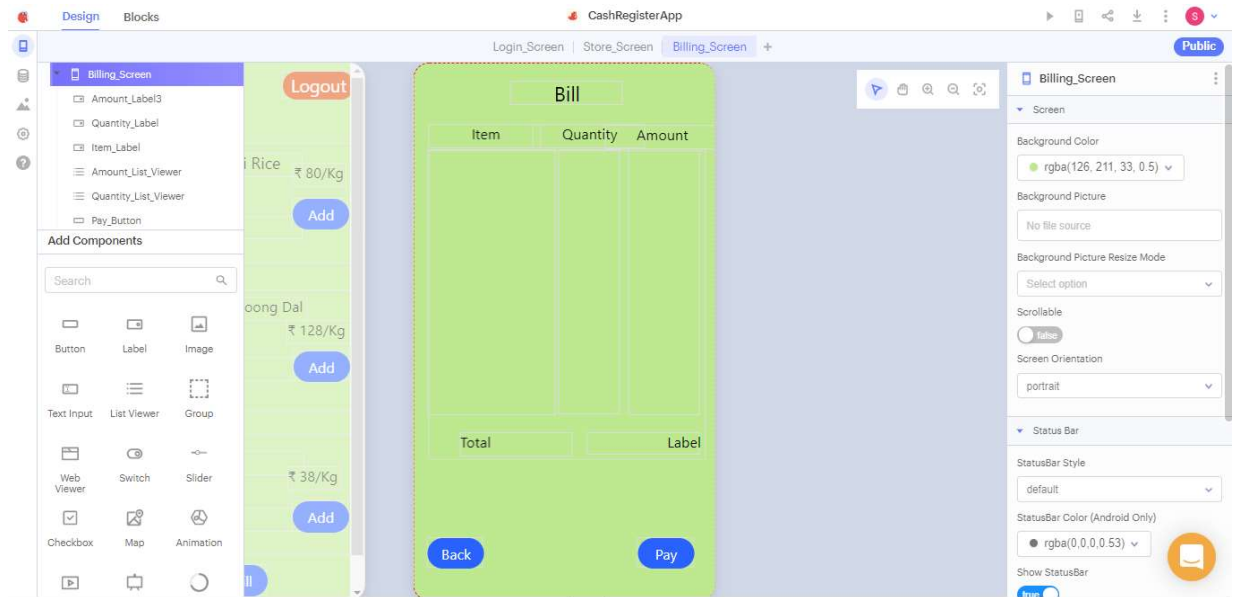


Now let's add few more labels for better clarity of the bill.

Add three label on the top of each list viewer as Item, Quantity and Amount.

Add 2 labels as the end as shown in the image given below.

You have successfully completed the User Interface part.



PART 4 – Coding the app

Step 24

Click on the Login_Screen and then click on the blocks option.

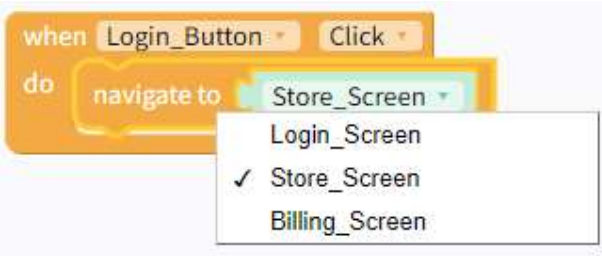
The App first starts with a login screen. In the Login screen the details have to be entered and the user should navigate to the Store Interface Screen. So let's start coding the Login Screen.



Click on the "Login_Button". Drag and drop the [] block in the middle of the screen. Now the screen has to be navigated to the StoreScreen.



Click on the Control Menu, then drag and drop the



“navigate to store screen block” in the previous block and then change the drop-down to store screen as shown in the image given below.




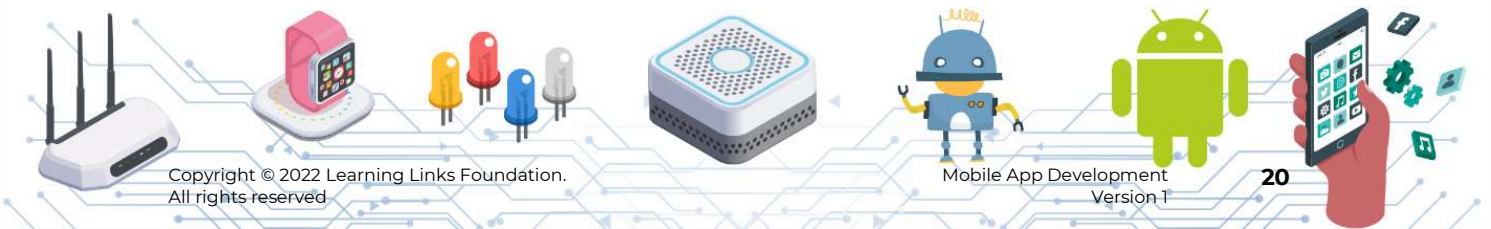
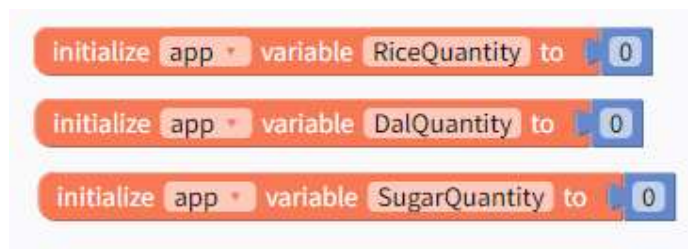
Step 25

Lets create few variables for the easy handling of the data in the app.

Let's create variables for Rice Quantity, Dal Quantity and Sugar Quantity. These variables are used to show the quantity of grocery left in the store.

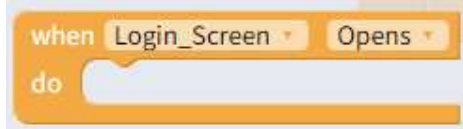
Click on Variable Menu, Then drag and drop  block in the code area. Then change the name to Rice Quantity. Click on Math Menu and drag and

insert the 0 block at the end of the  block. Duplicate the block for 2 times and change their names as follows.



Step 26

When we are logging into the app the quantity has to automatically set to 10. So let's write the code for it. Click on the Login_Screen then drag and drop



block in the middle of the screen.

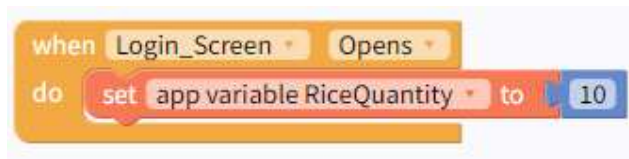


Now click on the Variable Menu, Drag and drop block in the previous block.

Then click on the Math Menu, Drag and insert the 10 at the end of the



block as shown in the image given below.



Duplicate the "set app variable RiceQuantity to 10" block for 2 more items.



Step 27

Let's code the Store Screen.

Click on the "Store_screen". In the Store Interface Screen, when we press the logout button the screen has to come back to the login screen.

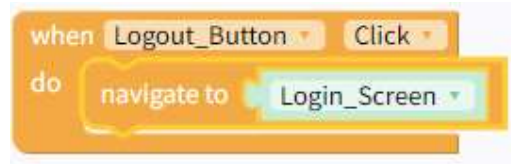


Click on the Logout Screen. Drag and drop block in the middle of the screen.



Mobile App Development - Cash Register App

Now click on Control Menu and drag and drop navigate to login screen block as shown in the image.



Step 28

Let's create a few more variables for storing the data of the app

Click on Variable Menu, drag and drop initialize app variable name to block in the middle of the screen then change the name of the variable to Item.

Click on list, drag and drop Empty list at the end of the variable.

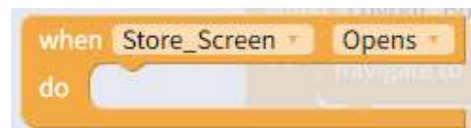


Duplicate the blocks by right clicking on the block and then change the other two names to quantity and Price as shown in the image given below.



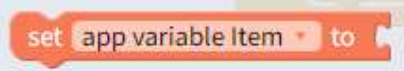
Step 29

When the Store Interface Screen is opened the lists should be set to empty until the user enters the details. So now let's code for it.



Click on the Store_Screen. Then drag and drop the middle of the screen.



Now click on the Variable Menu, Drag and drop  block in the previous block. Then click on the list block. Drag and insert the empty list block at the end of the block as shown in the image given below.

```
when Store_Screen Opens
do
  set app variable Item to empty list
```


Duplicate the set app variable item block and insert it below the previous block. Then change the name to quantity.

```
when Store_Screen Opens
do
  set app variable Item to empty list
  set app variable Quantity to empty list
  set app variable Price to empty list
```

Step 30


Now, let's code for the "Pay Bill" Button.

```
when Bill_Button Click
do
```

Click on the "Bill" Button, then drag and drop the  block in the middle of the screen.

When the "Pay bill" button is pressed the screen has to be redirected to the Billing Screen. Let's code for it.

```
navigate to Billing_Screen
```

Now click on the Control Menu, Drag and insert the  block in the previous block as shown in the image given below.

```
when Bill_Button Click
do
  navigate to Billing_Screen
```



Step 31

Now let's set the quantity of each item.


Click on the Item1Quantity_Label block and drag and insert the

 block in the

 block.

Then click on the Text Menu, drag and insert the

 block at the end of the

Now click on the variable, then drag and insert the  block in the first slot of the join block. Then enter "Kg" in the second slot.

Your code should look as seen in the image given below.



Step 32

Repeat the same for all the other two items also. Duplicate the block and change the item quantity label.

```

when Store_Screen Opens
do
  set app variable Item to empty list
  set app variable Quantity to empty list
  set app variable Price to empty list
  set Item1Quantity_Label's Text to join app variable RiceQuantity " Kg "
  set Item2Quantity_Label's Text to join app variable DalQuantity " Kg "
  set Item3Quantity_Label's Text to join app variable SugarQuantity " Kg "
  
```

Step 33

Now let's code for "add" Button.

Click on the Item1_group and then click on the Item1Add_Button. Then drag and drop a

```

when Item-1Add_Button Click
do
  
```

block in the middle of the code area.

Now click on the List Menu and drag and inset the

```

in list insert at last as " abc "
  
```

block in the previous block.

Now click on the Variable Menu and drag and insert the

```

app variable Item
  
```

the first slot of the

```

in list insert at last as " abc "
  
```

block.

Now click on the Item1_Label, drag and insert the

```

Item1 Name_Label's Text
  
```

place of abc block as shown in the image given below.

```

when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label's Text
  
```



Step 34

Now duplicate the previous block and change the app variable Item to app variable Quantity. Then click on Math, Drag and drop  block in place of abc block. Then change the number to 1 as shown in the image.

```
when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label 's Text
  in list app variable Quantity insert at last as 1
```

Once again duplicate the block and change the “app variable Quantity” to “app variable Price” and then change the number to 80

```
when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label 's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 80
```

Step 35

Now let's add a block to change the quantity of the grocery in the store.

Click on the variable block and drag and insert the

```
change app variable Item by 1
```

block below the previous block. Then change the “app variable Item” to “app variable RiceQuantity” and change the 1 to -1


```
when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label 's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 80
  change app variable RiceQuantity by -1
```




Step 36

When the item goes out of stock, we need to indicate that. So let's add a block of code for the out of stock scenario.




Click on the Control Menu, Drag and insert the  block in the previous block.




Then click on the Logic Menu, Drag and insert the  block in the if block slot.

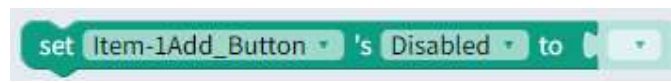


Click on the Variable Menu, Drag and insert the  block in the first slot of the logic block.



Now click on the Math Menu, Drag and insert the  in the second slot of the logic block then change the number to 1.



Now click on the item1Add_button and drag and insert the  block in the do slot.



Then change the condition to true by clicking on the blank block.

```
when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 80
  change app variable RiceQuantity by -1
  if app variable RiceQuantity < 1
  do
    set Item-1Add_Button's Disabled to true
```

Step 37

Now let's repeat the same steps for the other 2 items.

Right click on the entire

```
when Item-1Add_Button Click
do
  in list app variable Item insert at last as Item1 Name_Label's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 80
  change app variable RiceQuantity by -1
  if app variable RiceQuantity < 1
  do
    set Item-1Add_Button's Disabled to true
```

block and click on duplicate.

Then change all the parameters according to the Item 2 & Item 3 Group.

```
when Item2Add_Button Click
do
  in list app variable Item insert at last as Item2Name_Label's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 128
  change app variable DalQuantity by -1
  if app variable DalQuantity < 1
  do set Item2Add_Button's Disabled to true
```

```
when Item3Add_Button Click
do
  in list app variable Item insert at last as Item3Name_Label's Text
  in list app variable Quantity insert at last as 1
  in list app variable Price insert at last as 38
  change app variable SugarQuantity by -1
  if app variable SugarQuantity < 1
  do set Item3Add_Button's Disabled to true
```

Step 38

Now let's code for the billing screen.

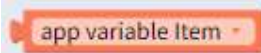
```
when Billing_Screen Opens
do
```

Click on the Billing_Screen block, drag and insert the block in the code area.

Then all the data has to be set to the list viewers.



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So click on the Item_Listviewer, drag and insert the block in the previous block. Then click on the variable, drag and insert the  block in the slot.

```
when Billing_Screen Opens
do
  set Item_List_Viewer 's text items to app variable Item
```

Step 39

Now repeat the same step to add other 2 items.

Right click on the block and duplicate it. Then change the item parameters as shown below.

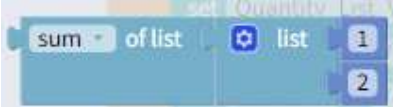
```
when Billing_Screen Opens
do
  set Item_List_Viewer 's text items to app variable Item
  set Quantity_List_Viewer 's text items to app variable Quantity
  set Amount_List_Viewer 's text items to app variable Price
```

Step 40

Now let's add the code for making the sum of the bill.

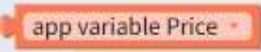
Click on the amount label and drag and insert the  block at the end of the previous block.

```
sum of list
list 1
list 2
```

Now click on the List Menu, Drag and insert the  block in the place of label. Then remove the list 1, 2 block.

```
when Billing_Screen Opens
do
  set Item_List_Viewer 's text items to app variable Item
  set Quantity_List_Viewer 's text items to app variable Quantity
  set Amount_List_Viewer 's text items to app variable Price
  set Label1 's Text to sum of list
```




Then click on Variable Menu, drag and insert the  block at the end of the sum block.


```
when Billing_Screen Opens
do
  set Item_List_Viewer's text items to app variable Item
  set Quantity_List_Viewer's text items to app variable Quantity
  set Amount_List_Viewer's text items to app variable Price
  set Label1's Text to sum of list app variable Price
```

Step 41

Now let's code the "Pay" Button.

```
when Pay_Button Click
do
```

Click on the pay button and drag and insert the  block in the middle of the screen.

Then click on the Control Menu, drag and insert the  block in the previous block. Then change the screen to store_screen.

```
when Pay_Button Click
do
  navigate to Store_Screen
```

Step 42

Now let's code for Back Button.

```
when Pay_Button Click
do
  navigate to Store_Screen
```

Right click on the previous  blocks and click on duplicate.

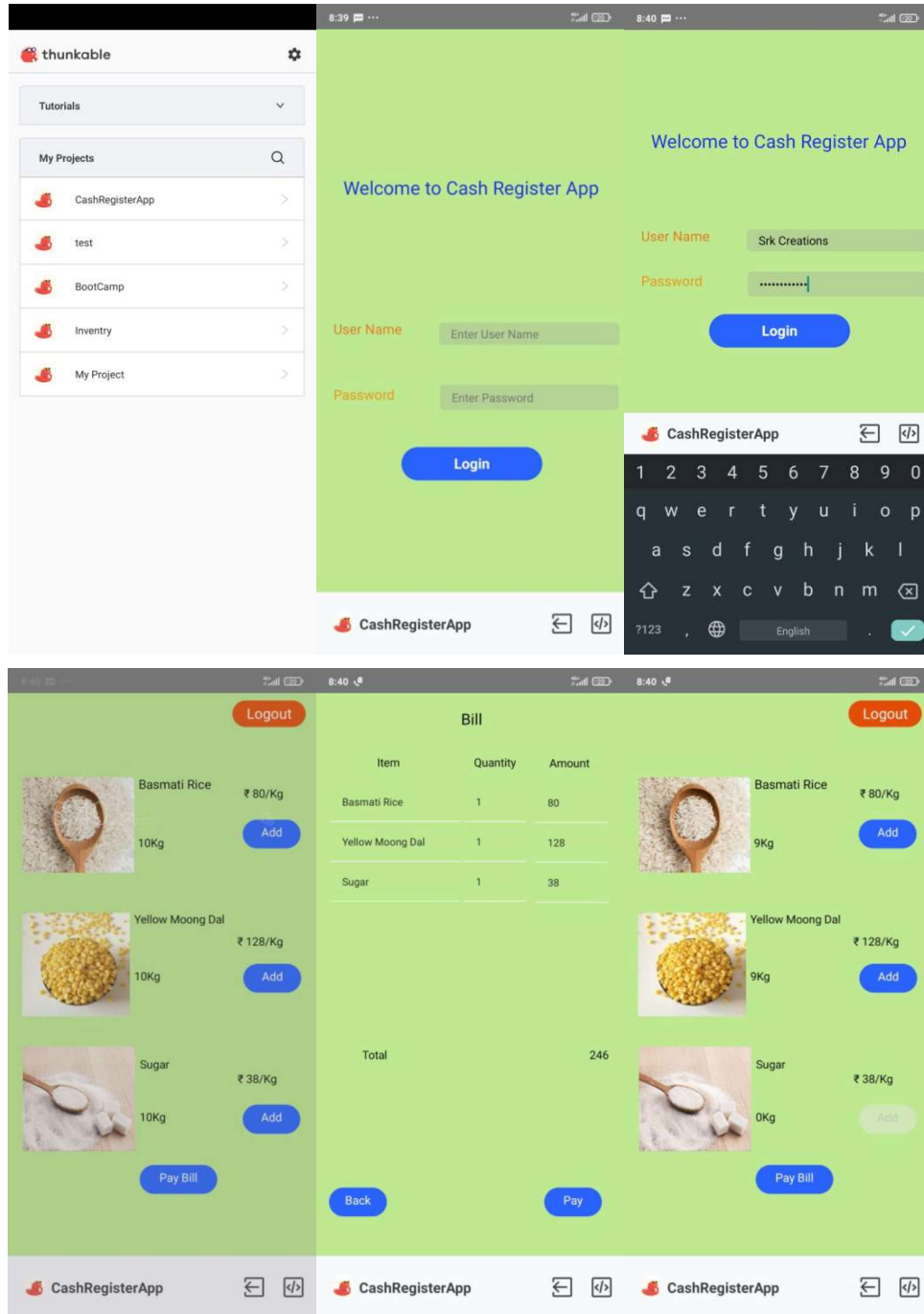
Then click on the pay_button and change it to Back_Button.

```
when Back_Button Click
do
  navigate to Store_Screen
```



Step 43

Congratulations you have successfully completed the project. Navigate through the app and explore it.



Reflection:

1. What do you think is the purpose of loops in our code?
2. Research and find out the differences between User Interface and User Experience.
3. What is the purpose of “When do” function?
4. What improvements do you recommend to this App?
5. Given a chance to build your own app to solve a real-world problem, what kind of app would you build and which problem your app would solve?





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