Section1 = Google Analytics

To implement Google Analytics in our application, we followed the following steps:

1. Create a new account under personal email
2. Create a new application to deploy your app to
3. Deploy your app to the new application
4. Create a new google analytics account using your personal email
5. Create a property, customize the settings to your app and add your deployed app URL
6. You will be given a Track ID that you will use to enable analytics in your project
7. Add the following code snippet with you tracking ID:

```
<script>
window.dataLayer = window.dataLayer || [];
function gtag(){dataLayer.push(arguments);}
gtag('js', new Date());
gtag('config', '<TRACKING ID>');
</script>
```
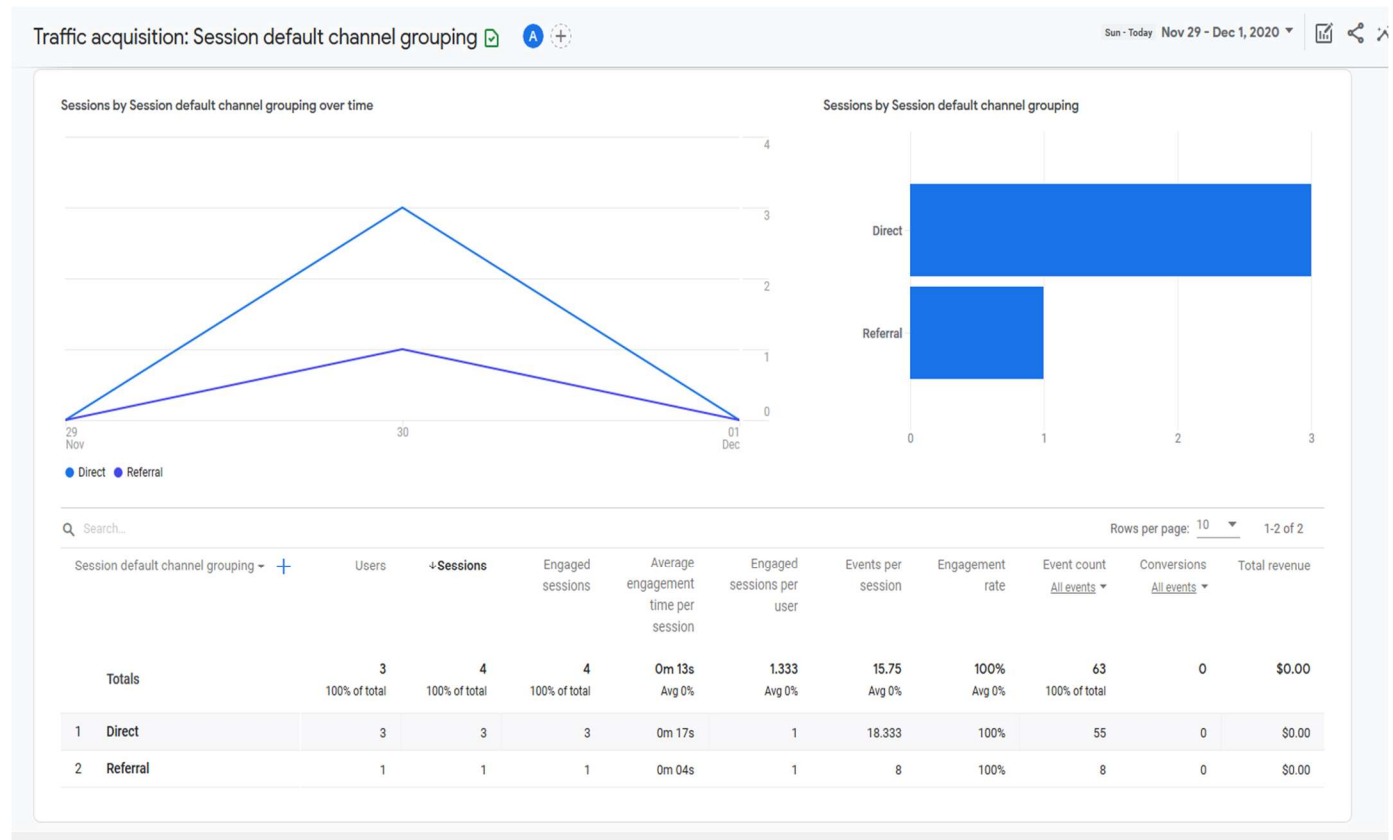
8. Deploy again so the tracking code is included in your deployment
9. Log in into google analytics and now you can view your website analytics

1.1.a: metric 1 – graph/plots/visualization

We used Traffic acquisition as our metric 1 for Google Analytics.


1.1.b: interpret the metric 1's trend

From the graph above, we can see that there were total number of 3 users who visited the application and there were 4 session created. Out of those 4 sessions, 3 sessions were direct that means these users directly visited the site. However, 1 session was created from referral which means one user visited the app from referral from any social networking sites, emails or any other medium. We can also see that the average engagement time per session was 13 seconds. This was because it was only the group members visiting the app to check if the analytics was working or not. Similarly, we can also see how engaged the users were, how many events occurred per session and what the engagement rate was. Since, it is in the development stage we cannot accurately see the trend. Once, many users start using the app for few days or weeks, we'll be able to see the trend and can make decisions based on the trend.

1.1.c: limitations of metric 1

The limitations of metric 1 for this case is that since it is in the development stage, there are not enough data to make any decisions. Due to fewer users, we can only see two channels used to get to the app. In general, however, the limitation of using traffic acquisition is that the direct traffic will always be higher. This is because direct traffic means the traffic which did not have any referrals passed to our site and no information regarding this was recorded. Basically, some information don't get recorded like when a user moves from HTTPS to HTTP or when the user visits through a dark link and so on. Therefore, it is difficult to clearly distinguish the traffic and some extra work has to be done to get clearer information.

1.2.a: metric 2 – graph/plots/visualization

We used user categorization as our metric 2.
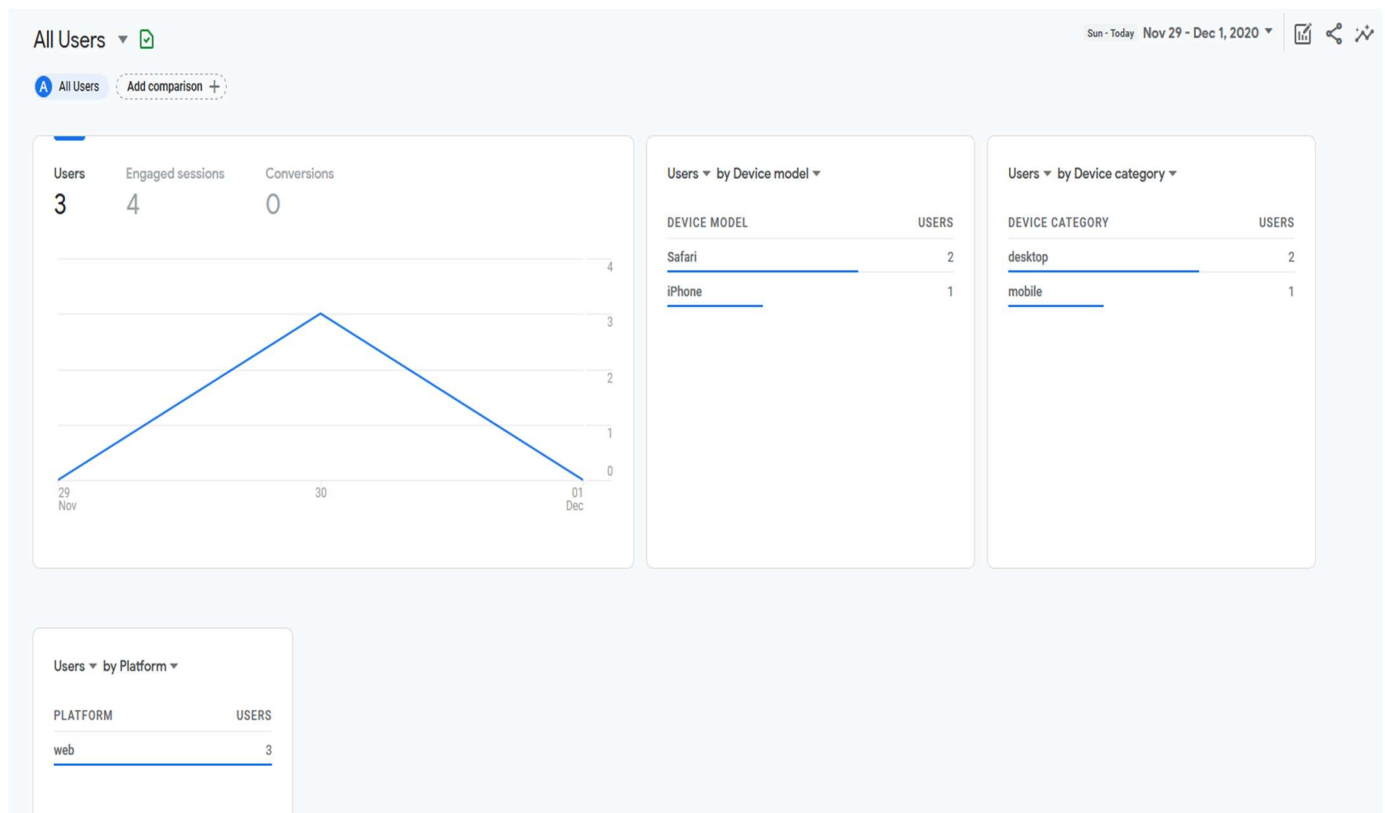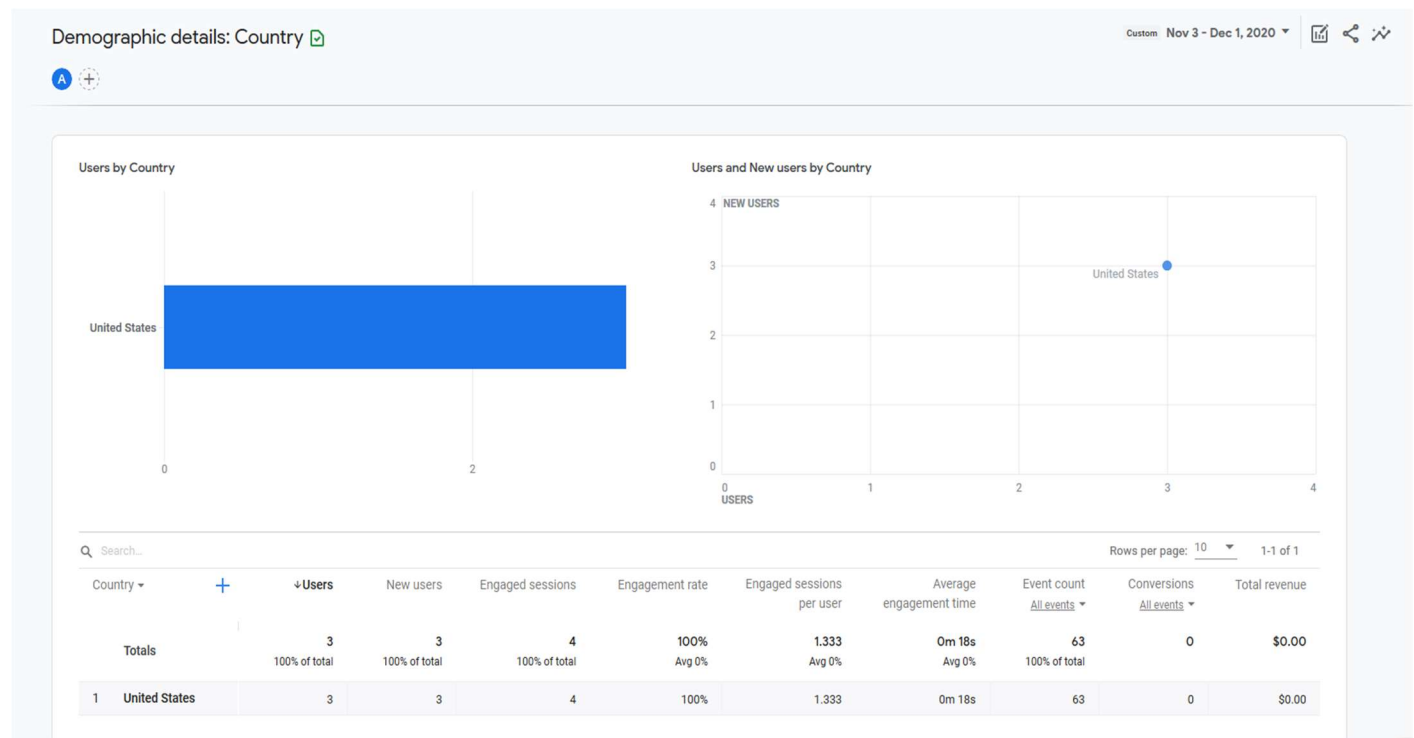
1.2.b: interpret metric 2's trend

From the above graph, we can see that we had 3 users and 4 sessions. Furthermore, we can see that users have been categorized based on the platform, device category and device model. In Platform, we can see that all the users visited the app through web. In device category, 2 users visited through desktop and 1 using mobile. And lastly, in device model, 2 users used Safari and 1 used iPhone. With this data, we can see that more users have used desktop to visit the app and were using Safari. The conversion says 0 that means the users have not completed the activity in the app. The interpretation is not very accurate due to the fact that we do not have enough data. With enough data available, we would be able to identify which device, whether desktop or mobile or tablet has better conversion rate and based on that we can target to attract more traffic on the device with better conversion rate.

1.2.c: limitations of metric 2

The limitation for this metric is that we can only view which devices and which platform are the users using. However, we do not know if the same user used multiple devices to log in. There is now way for us to find that out.

1.3.a: metric 3 – graph/plots/visualization

Metric 3 that we used is the demographic details.

1.3.b: interpret metric 3's trend

In the above graph, we can see from which countries the users are accessing the app. Since, it was just us using the app, the total number of users is only 3. From the graph, there were 4 engaged sessions by the 3 users and the engagement rate was 100%. From this metric, we can also see how long the users were actually using the app and also how many events occurred during the engagements. Since, this is a Facebook app, people from all over the world will have easy access to it due to which we will be able to see much diverse data generated. With that data, we will be able to customize the app to target the country with the most number of users like adding features to change the language to their native language and so on.

1.3.c: limitations of metric 3

The limitations for this metric it only shows the total users from a particular country. But a user accessing the app from a particular country does not necessarily mean he belongs to that country. For example, if the app is customized for people in USA then this does not necessarily mean that the app will get more users because even if the number of users in US was high does not mean that only the Americans used the app. A country can have a much diverse population in it which the metric fails to provide. Therefore, updating the app becomes tougher due to lack of clear information.

Section2 = Facebook Analytics

For implementing Facebook Analytics, we started with setting up the Facebook Analytics for our project project1. After that, we went on to create our customized dashboard showing a few important metrics for our app. The metrics that we used are User Retention (who come back to the app), Unique Users (new users using the app) and number of users completing the app (using funnel feature).

2.1.a: metric 1 - graph/plots/visualization

Metric 1 we used is retention which shows how many users repeatedly used the application.

Login Dialog Impressions > Login Dialog Impressions: ...
100% of users

Retention

| | Week 0 | Week 2 | Week 4 | Week 6 | Week 8 | Week 10 | Week 1 |

0% Retention

Login Dialog Impressions > Login Dialog Impressions: Last 28 Days
100% of users

Retention

| | Week 0 | Week 1 | Week 2 | Week 3 |

2.1.b: metric 1 – interpret metric 1's trends

The above graph shows that the user retention was 100% in the first week of the app launch. This graph tells us that all the users that used the app came back to use it again. This metric is important because it actually lets you know how popular the app is among the users which can determine the future of the app. It allows the user to improve or add more features to the app based on how the trend goes.

2.1.c: Limitations of metric 1

The limitations of this metric is that even though it tells how many users came back to using the app again but that does not necessarily mean that the user actually used the app. For example, the users might have just executed the app but not actually used it. So, just by this metric the developers cannot derive exact information on whether the app is actually popular or no.

2.2.a: metric 2 – graph/plot/visualization

Metric 2 shows how many new users used the application.
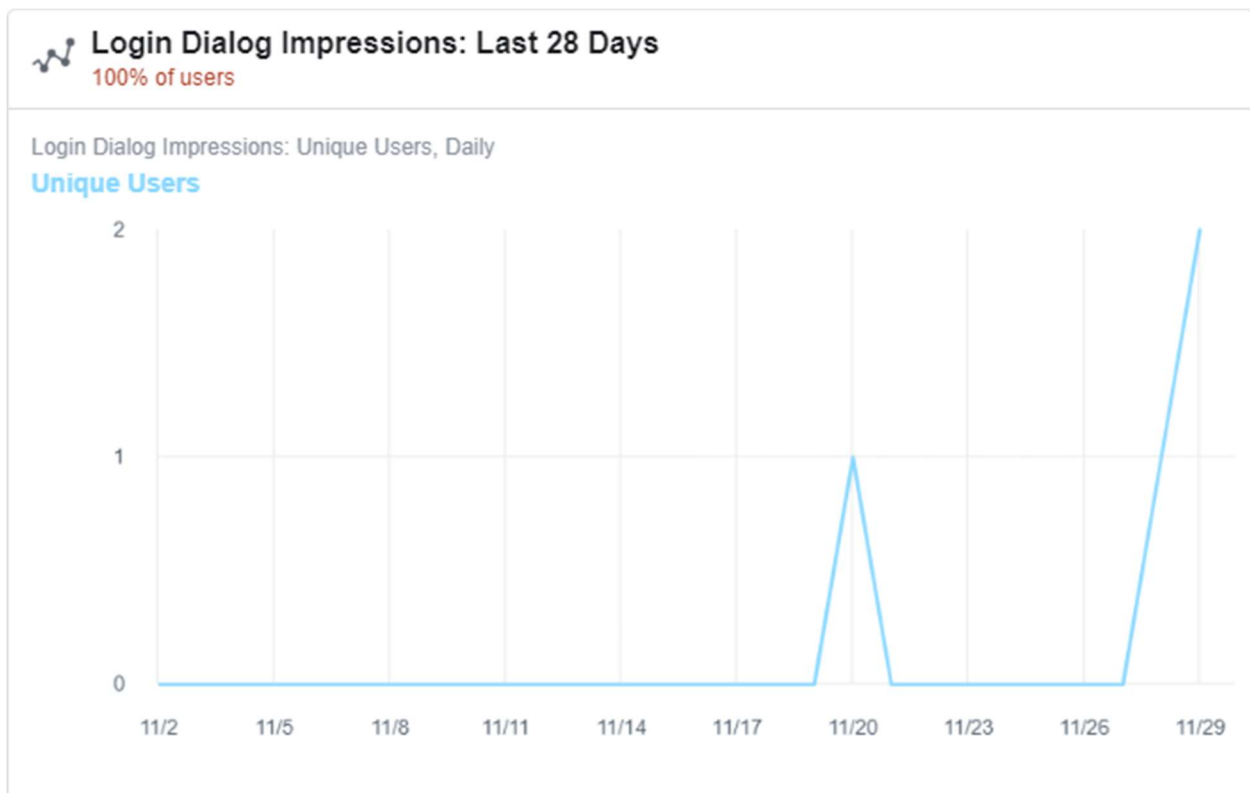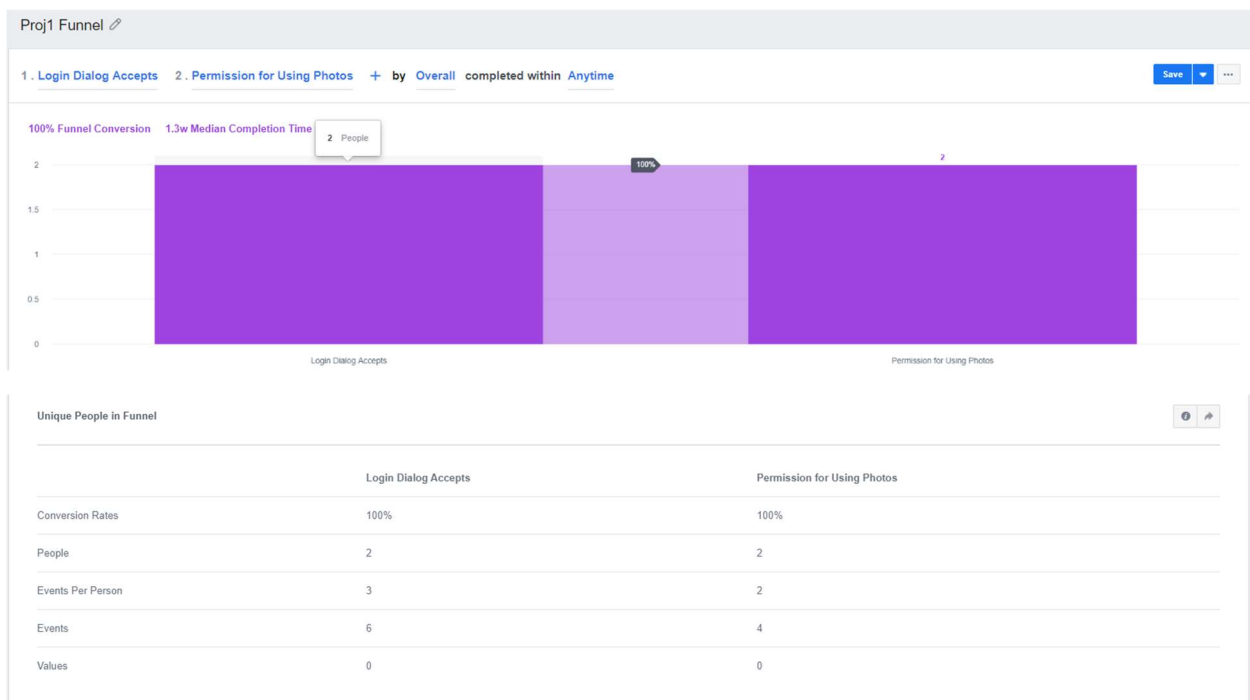
2.2.b: metric 2 – interpret metric 2's trend

From the above graph, we can see that from November 20 to November 29, the number of new users using the app doubled from 1 to 2. This metric helps the developers or admins to know how many new users are using the app on a daily basis. With this information, the developers can add more features in the app to attract more new users. This is important for the future of the app as it allows the developers to keep improving the app.

2.2.c: Limitations of metric 2

The above graph shows the number of new users that used the application. However, there is no way to identify if the unique users are actually different individuals. It is possible that a same individual is using the application from his/her multiple accounts. Therefore, from the information displayed in the graph, it is difficult to know if the application is reaching new audiences or not.

2.3.a: metric 3 – graph/plot/visualization

This metric shows how many users actually went through all the steps to use the app.

Completion Time for Each Step		
	Login Dialog Accepts	Permission for Using Photos
Top 25% Users	--	21 seconds
Top 50% Users	--	1.3 weeks
Top 75% users	--	1.3 weeks

2.3.b: metric 3 – interpret metric 3's trend

This metric is really important for the developers because this metric actually provides the actual number of users who went on to actually use the app. The previous metrics would show the number of users using the app but there was still a doubt if they just opened the app or actually used it. This metric, however, gives the exact number of users who actually used the app. Therefore, based on this information, the developers can update the application to attract the users to use the application and not just visit.

2.3.c: limitations of metric 3

Same as the previous metrics, the developers do not have an exact information whether the users shown in the graph are different individuals or same person. In the graph, it can be seen that a couple of people actually went through all the steps to operate the application but it is unclear if the two users are the same person or different. So, it is unclear if the app is attracting new audiences or not by looking at the above graphs.

Section 3: Compare Google and Facebook Analytics

Google Analytics is an older data tracking system which has been developed over the years and thus has many functionalities compared to the Facebook Analytics. Google Analytics uses user sessions which it tracks by using cookies. It provides functionalities like custom dimensions, user ID tracking, calculated metrics and so on. It provides more customization options to the users allowing them to customize the data that they want or don't want to see. For us, the best metric in Google Analytics was the number of users and the types of devices they used to access the app. This data gives us the idea of how many people are accessing the app using their phones, tablets or laptops/desktops. If the app is more popular amongst the mobile users then we can make the app more mobile friendly adding more features to it which allows us to attract more users towards the app.

Facebook Analytics is a relatively new tracking system and thus provides much lesser functionalities than the Google Analytics. It uses sign in to track user sessions which allows it to track users across the web regardless of the devices they are using. The data from Facebook Analytics is difficult to see, pull out and make sense of but it does provide a lot of options on the data is displayed. It provides an easy to set up dashboard which allows the users to go through the list and select what they want to see and make their own version with the information they want to see. The best metric in Facebook Analytics was finding the number of user who actually used the app. With the use of Funnel Functionality, it is easier for the developers to find out how many users actually followed all the steps to use the app. This metric is more important for the businesses selling products who can see how many people viewed the products and how many people actually went on the buy the product by adding the product to their carts and proceeding to check out.