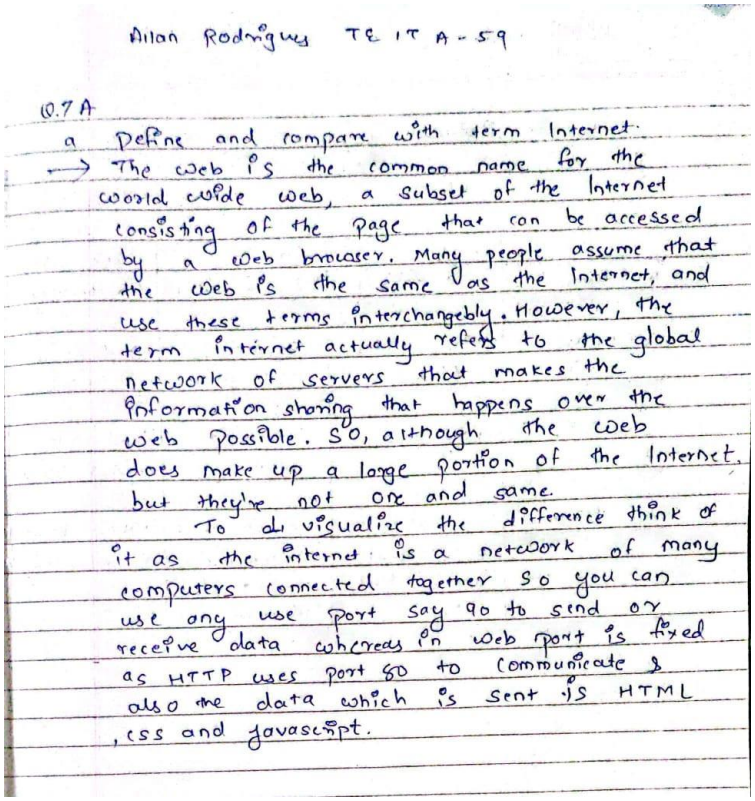
St. Francis Institute of Technology, Mumbai-400 103
Department Of Information Technology

A.Y. 2021-2022
Class: TE-ITA/B, Semester: VI

Subject: **Web Lab**

Experiment – 1: To study web analytics using open source tools like Matomo, Open Web Analytics, AWStats, Countly, Plausible.

1. **Aim:** To study open source Web Analytics tools
2. **Objectives:** Aim of this experiment is that, the students will be able
   - To Understand open source tools for web analytics in web apps development and deployment
3. **Outcomes:** After study of this experiment, the students will be able
   - To understand the importance of web analytics.
   - Learn about various open source tools for web analytics
   - To have an introduction to web semantics
4. **Prerequisite:** Knowledge of digital web evolution,
5. **Requirements:** Personal Computer, Windows operating system, browser, Internet Connection, google doc.
6. **Pre-Experiment Exercise:**
   Brief Theory: Refer shared material
7. **Laboratory Exercise**
   A. **Procedure:**
      a. **Answer the following:**
         - Define web and compare with term Internet.



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Q.7 A

a Define and compare with term Internet.

→ The web is the common name for the world wide web, a subset of the Internet consisting of the page that can be accessed by a web browser. Many people assume that the web is the same as the Internet, and use these terms interchangebly. However, the term internet actually refers to the global network of servers that makes the information sharing that happens over the web possible. So, although the web does make up a large portion of the Internet, but they're not one and same.

To di visualize the difference think of it as the internet is a network of many computers connected together so you can use any use port say 90 to send or receive data whereas in web port is fixed as HTTP uses port 80 to communicate & also the data which is sent is HTML, css and javascript.

- What is a Web based application?

A Web application (Web app) is an application program that is stored on a remote server and delivered over the Internet through a browser interface. Web services are Web apps by definition and many, although not all, websites contain Web apps.
Web applications can be designed for a wide variety of uses and can be used by anyone; from an organization to an individual for numerous reasons. Commonly used Web applications can include webmail, online calculators, or e-commerce shops. Some Web apps can be only accessed by a specific browser; however, most are available no matter the browser.

Web applications do not need to be downloaded since they are accessed through a network. Users can access a Web application through a web browser such as Google Chrome, Mozilla Firefox or Safari.

For a web app to operate, it needs a Web server, application server, and a database. Web servers manage the requests that come from a client, while the application server completes the requested task. A database can be used to store any needed information.

- Compare desktop application with web based application?

Web Applications	Desktop Applications
➢ Deployment and up-gradation for a web-based application require deployment on a single set of server machines.	➢ Deployment and any up-gradation/patch are done on individual client machines separately.
➢ Web applications can be accessed from anywhere, so there is no location constraint.	➢ As desktop are confined to a standalone machine, so they can be only accessed from the machines they are deployed in.
➢ Web applications are platform-independent, they can work in different types of platforms with the only requirement of a web browser.	➢ Desktop applications need to be developed separately for different platform machines.
➢ Web applications are at higher security risks as they are inherently designed to increase accessibility.	➢ Desktop applications, on the other hand, have better authorization and administrators have better control, hence more secure.
➢ Web applications rely heavily on internet connectivity, for there operation.	➢ Desktop applications don't require the internet for their operations. Some applications just require internet connectivity at the time of updates.

- Compare Google analytics with Countly,Plausible, Matomo-

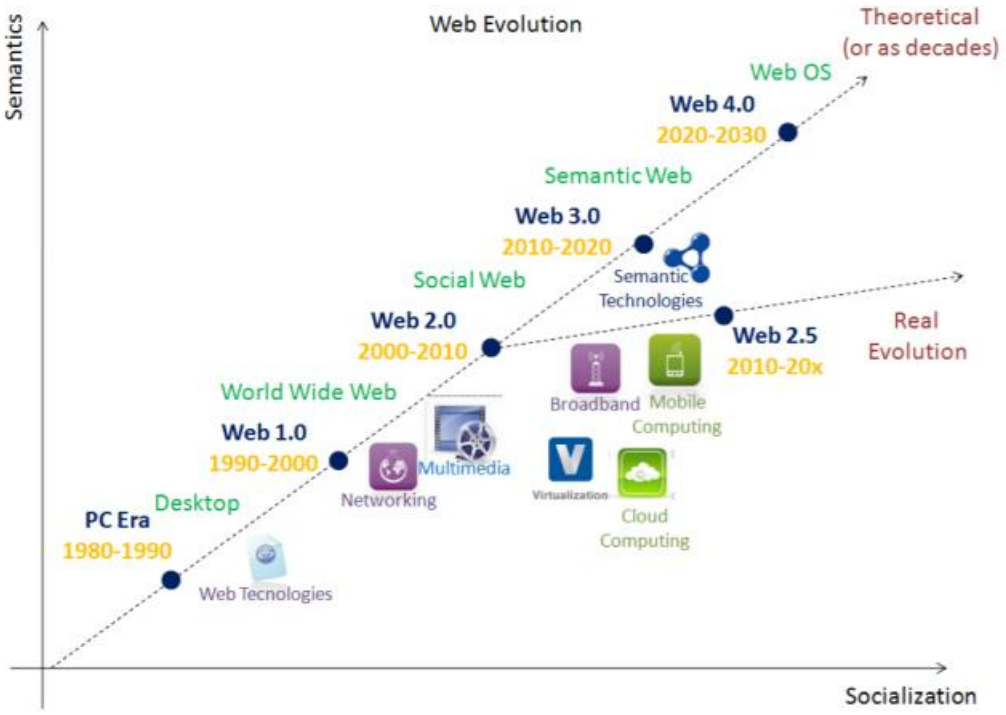
sr no	parameter	Google Analytics	Countly	Plausible	Matomo
	Session	A session in Google Analytics is a group of interactions recorded when a user visits your website within a given period	Each launch of the application or a visitor landing on a web page.	Show how much time an individual spend on average on specific pages	Session Recordings lets you record all activities on a page of a real visitor such as clicks, mouse movements, scrolls, window resizes, page changes, and form interactions
	Total Visitors	Number of users who have initiated at least one session during the date range	Number of unique visitors to a website for a selected period.	The number of people who visited the site. This tool is privacy friendly so they don't use cookies and other persistent identifiers. If a person visits from multiple devices or on multiple days, they are counted as separate visitors	The number of unduplicated visitors coming to your website. Every user is only counted once, even if he visits the website multiple times a day.
	Returning Users/Visitors	A user who returns to a site by using the same	Number of users that have used the application	One of the biggest limitation with is that Plausible.	Visitors marked as returning visitors: 1.

		browser or same computer or device	at least once before.	cannot do good retention analysis. It cannot show stats like New vs Returning visitors because they rely on having a persistent user identifier	They have visited the website at least once before this visit and both visits were made using the same browser and with tracking cookies enabled.
	Average Request Received	The limits and quotas of requesting the Management APIs and Reporting APIs. It put limits and quotas on API requests to protect the system from receiving more data than it can handle, and to ensure an equitable distribution of the system resources	Number of write API requests Countly Server receives for each session	API keys have a rate limit of 600 requests per hour by default	The Request class is used throughout Matomo (formerly Piwik) to call API methods.
	Time Spent	Measures how long a user spent on the site in total	Total time spent on the website for the selected time period	The average time people spend on a particular page on your site. This is calculated as the difference between the	By default, Matomo (Piwik) will accurately track the time spent on all your pages, except the last page view of the visi

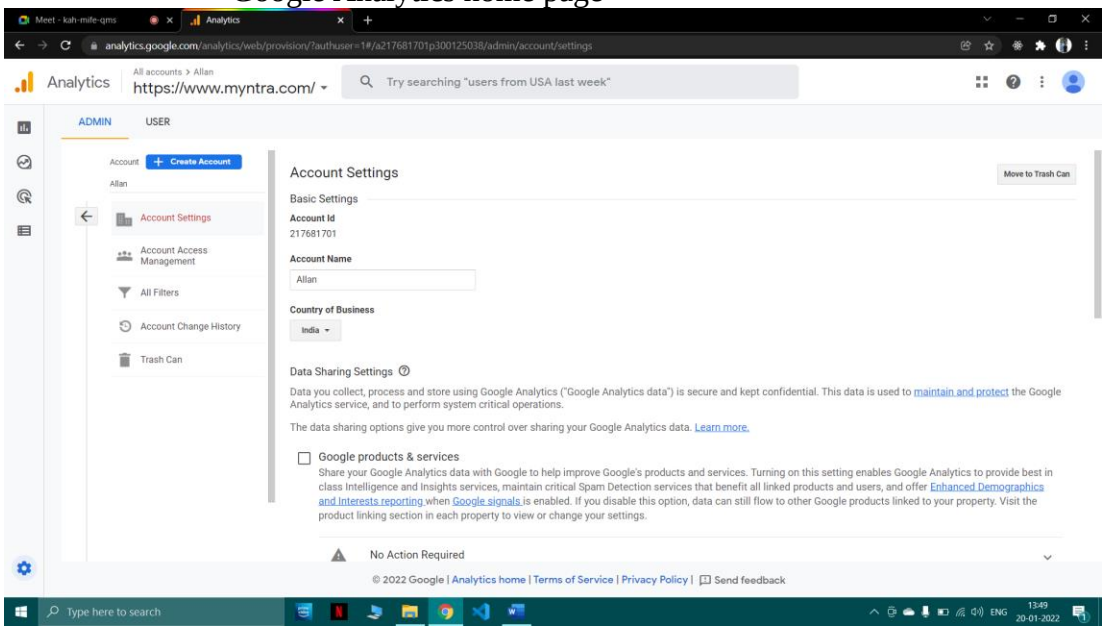
				point when a person lands on a particular page and when they move on to the next page.	

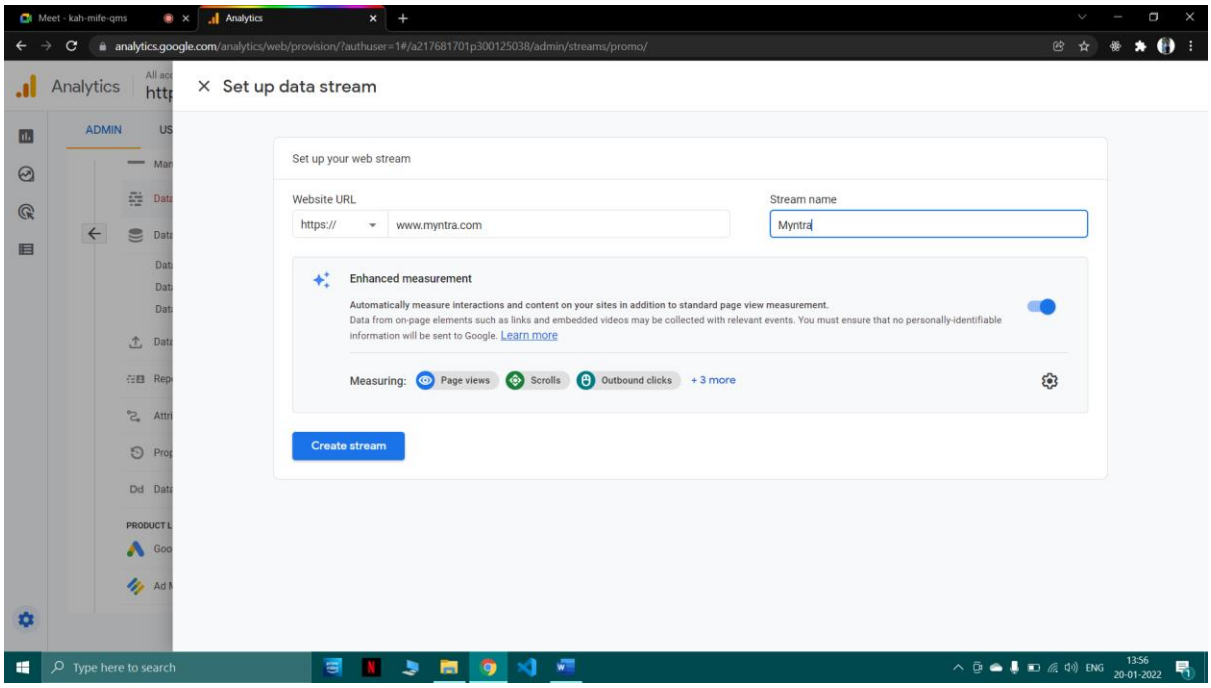
b. Attach screenshots:

- Web Evolution

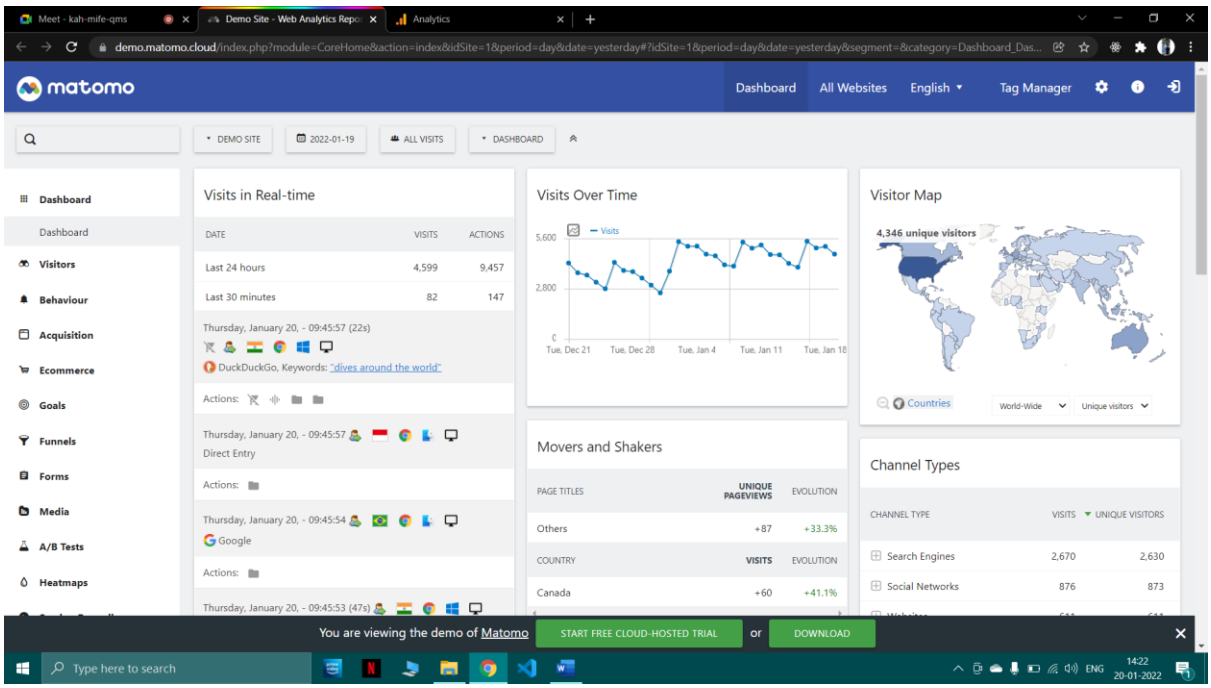


- Google Analytics home page





- Matomo user interface



8. **Post-Experiments Exercise**
   A. **Extended Theory:**
      Nil
   B. **Questions:**
      - Write in tabular form main characteristics of each Web generations (web theme, technologies, level of functionalities, key differences)

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Q 8 B

• Write in tabular form main characteristic of each web generations.

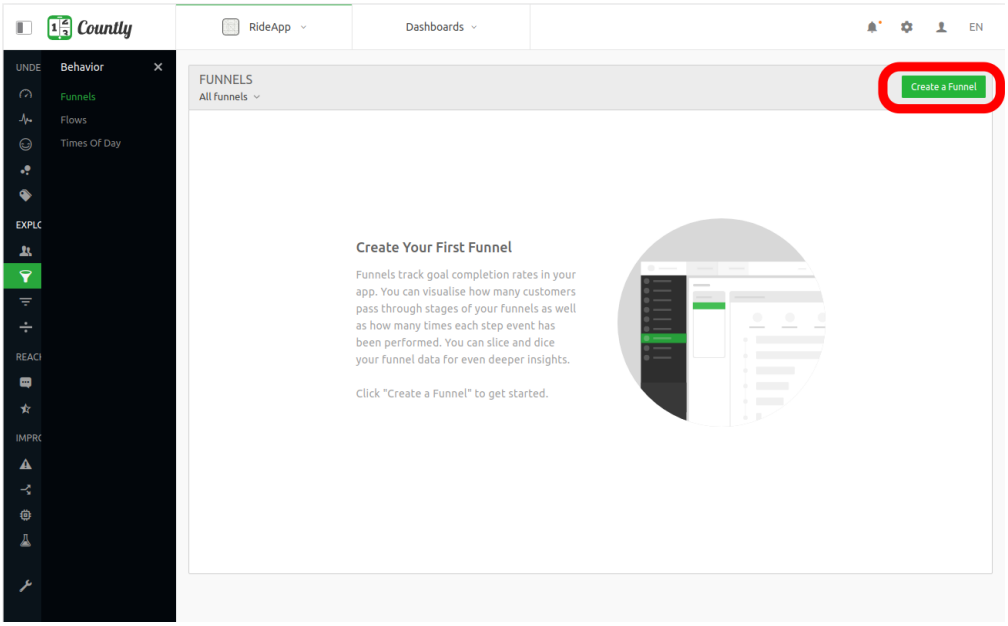
	Web 1.0	Web 2.0	Web 3.0
Web Theme	Static Web	Dynamic web	Semantic web
Some Major Technologies	HTTP, HTML, XML	JS, PHP, JSP, ASP, JAVA.	OWL, RDF, SPARQL
Level of functionality	Read Web	Read-write web	Read-write-execute web
key differences	Information source but limited feature	Functional but enrourmance amount of information	Semantic linkage of knowledge

      - What are the steps to create a funnel in countly?

        Funnels in Countly are an intuitive way of tracking and analyzing user behavior. This guide provides a quick overview of their setup and capabilities.

        Creating a Funnel

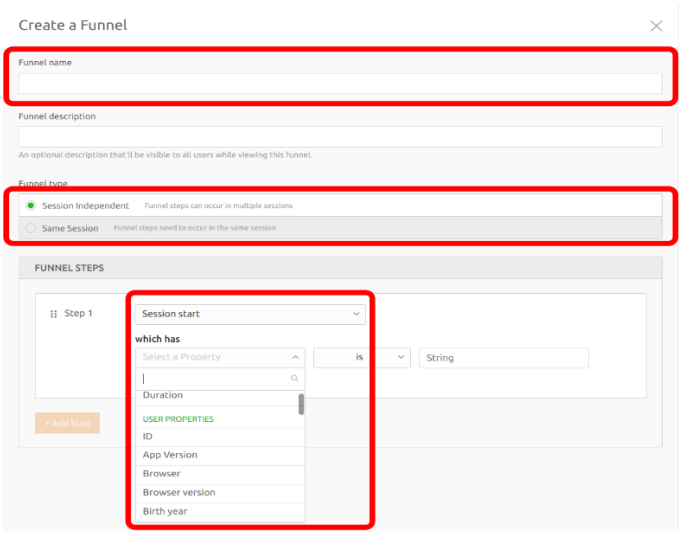
First of all, you must enable Funnels in the Countly Dashboard by going to Management > Plugins in the top-right corner. You will then find Funnels under the Behavior category of the Explore section of your Dashboard.



If you have not created a funnel yet, you will see an empty funnel page with a description. You need to click on the Create a Funnel button on the top-right corner of the Funnels overview page.

When you click on the Create a Funnel button, the Create a Funnel drawer will prompt.

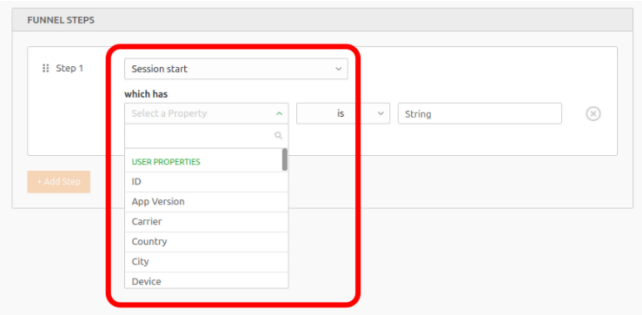
Funnels require a minimum of 2 steps and up to 8 steps which is configurable from Management > Configurations. You can increase the number of steps as you like, and you can discover at which step users are stuck or getting problems.



Funnel Name: You must give your funnel a name to create it, while funnel description is optional.

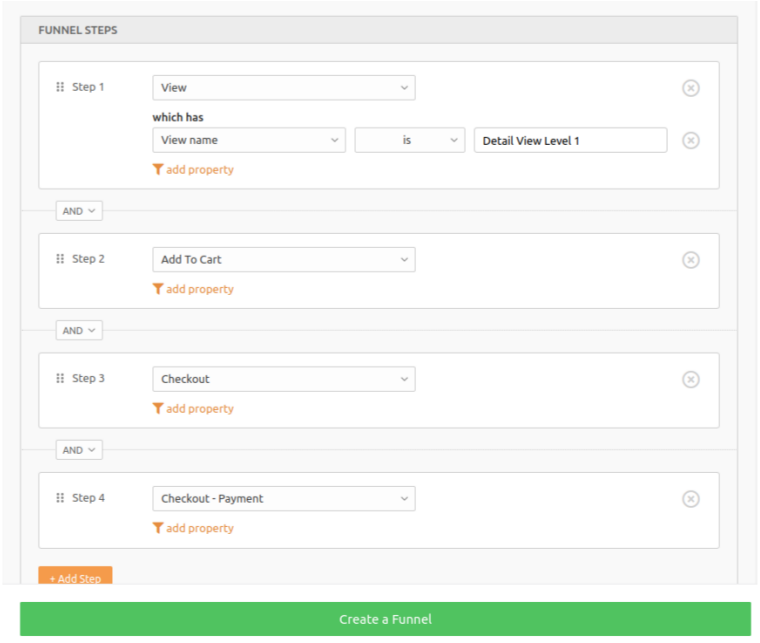
Funnel Type: This helps you configure the session dependence of your funnel.

Funnel Steps: You can define the steps of your funnel by either inputting the event key you plan to send in the future or selecting one from your existing events.



When you select an existing event as the first step, the add property link button will appear, letting you add a segmentation filter for your funnel step. For example, if you add the segmentation filter count is 2, you will see funnel users who completed this particular event two times. Similarly, you can select the City user property to filter the completion of the event by location. You can keep adding segmentation filters to each step of the funnel for more precise targeting.

For example, say you have an e-commerce website. When your users enter a product page ("Detail View Level 1") you want to know the selling rate of this product for users from a specific country.



The steps you need to set are:

Define an event for the buttons to this product page

Define an event for the "add to cart" button on this page

Define an event to track when it goes to the checkout page

Define an event for when the order is completed

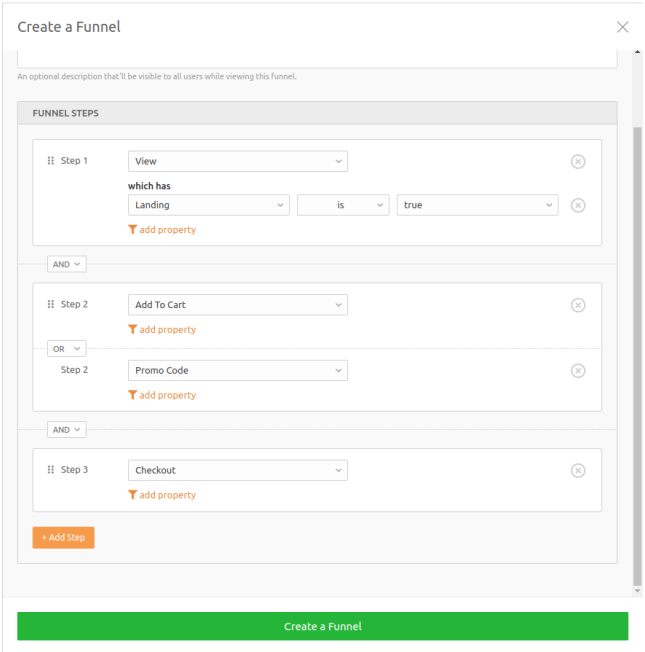
Session Dependence

By default, funnels capture all users who complete a series of events, regardless of the session to which those events belong. In other words, events taking place in the exact order you determined is enough for considering that a user completed that funnel. These type of funnels are called "Session Independent".

A user must do all steps of the funnel to be regarded as having completed the funnel. In some cases, however, this can be too restrictive.

For instance, you may need a 3-steps funnel, where the second step can be either adding an item to cart or redeeming a promotion code. In other words, you may need to define a funnel that accepts both of these paths:

1. View > Add to Cart > Checkout
2. View > Promo Code > Checkout

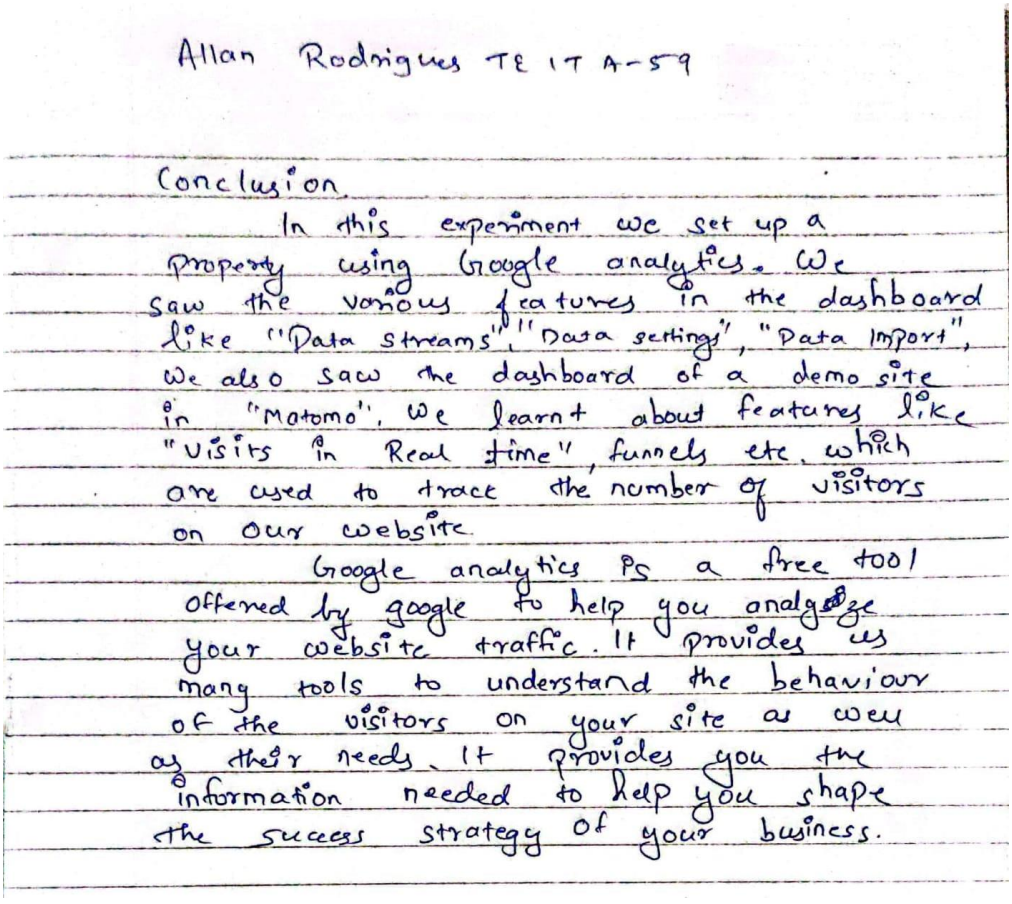


In order to accomplish that, you simply change AND, which is between Add To Cart and Promo Code, to OR. This will merge both steps and convert them into a group of steps. Consequently, users who have done at least one of the above paths (1 or 2) will complete the same funnel.

- Give important KPI of web analytics.

The top eight key performance indicators to track on your website
1. Bounce Rate
2. Unique Website Visitors
3. Pages Viewed Per Session
4. Average Time on Page
5. Top Landing Pages
6. Top Exit Pages
7. Goals and Event Completions
8. Onsite Search Queries

C. Conclusion:



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Conclusion

In this experiment we set up a property using Google analytics. We saw the various features in the dashboard like "Data streams", "Data setting", "Data Import", We also saw the dashboard of a demo site in "Matomo". We learnt about features like "visits in Real time", funnels etc. which are used to trace the number of visitors on our website.

Google analytics is a free tool offered by google to help you analyze your website traffic. It provides us many tools to understand the behaviour of the visitors on your site as well as their needs. It provides you the information needed to help you shape the success strategy of your business.

D. References:

1. https://aircconline.com/ijaia/V8N6/8617ijaia02.pdf
2. https://support.count.ly/hc/en-us
3. https://analytics.google.com/analytics/web/provision/#/provision