

1. Advanced Web Designing

SOP 1: Creation of website using HTML5

Create a website using html5 and CSS using any 4 css properties. Write a code for 2 separate pages having different file name such first page as index.html, 2nd page as page2.html as form.html. Use any theme such as college profile or company profile etc. Every page must contain proper Meta information and design webpage as follows-

- 1) The index page must contain a heading which is highest among other text on pages and must be at center of the page. There must be a paragraph which introduces general information about the theme chosen. It must have at least 3 physical style tags and one image with alternate text. This page must be connected to other page with proper navigational links.
- 2) The 2nd page must contain the feedback or enrollment form related with theme chosen with feature of html5. The form must contain text element and email address of the company or person .Include the submit button.

SOP 2: Create a webpage using HTML and CSS code to design a web page as the layout displayed below.

The top section will display the heading ,'Tourist places' in header. The section on the left has list of cities. The right hand side display tourist places in any one of the city .

Use Inline style sheet in the top section to display background colour for the text 'Tourist places'. Use internal stylesheet for the left and right section with background colours and font styles.

Touris	st places
City 1. Pune 2. Banglore 3. Hyderabad 4. Delhi	Tourist places in Pune • Shaniwarwada • Kelkar Museum • Sinhgad fort

SOP 3: Create a website using HTML and CSS code to design a web pages as follows -

The first webpage will accept the name of the traveller, Date of travel, telephone number. It also has submit button as an image.

The second webpage has information about the name of transporter, time, seat no and destination displayed one below the other in the form of unordered list as

Name of transporter – Air Asia

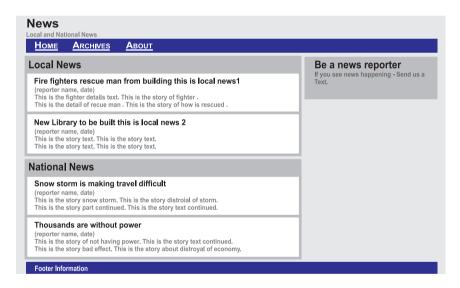
Seat no - B39

Destination - Delhi

Both pages should be interlinked. Create external stylesheet with relevant tags.

SOP 4: Creation of website using HTML 5 and CSS.

Create a webpage as given layout use <nav>,<header>,<footer>,<aside>,<article> with CSS.



SOP 5: Use of Audio on web pages using html5.

Create a webpage named audio.html to set an audio file in web page with controls such that it uses html 5 elements. The audio file must play as soon as the webpage loads in browser and it will start over again, every time when it is completed.

Create another webpage named audio1.html which provides multiple source file formats for the same audio file that plays a sound with controls. The code must incorporate the list of sound files formats (like way, MP3 or ogg etc).

SOP 6: Use of video on web pages using html5.

Create a webpage named video.html to display a video file on web page and plays automatically. The dimension of video area should be 150* 150 pixels.

Create another webpage which provide multiple source file formats for the same video file that plays a video with controls. The dimension of video area should be 300* 300 pixels. The code must incorporate the list of video files formats (like webM, MP4 or ogg etc).

SOP 7: Navigation on an image using Client side image Mapping in web page using html 5.

Create a webpage named imagemap. html with an inserted image having jpeg, png or gif extension. Create 3 different shapes (like rectangle, circle and polygon) which do not overlap. Note down the co-ordinates making use of Ms-Paint/GIMP/IrfanView/Pinta. Each shape should be mapped or navigate with a different URL, one of the clickable area should navigate to a local webpage.

2. Digital Marketing

- **SOP 1:** With the help of SEO tool which is freely available optimize the website and write down the following findings. Ask the teacher/examiner to provide URL of the website to be optimized.
 - 1) Name of the website you are optimizing.
 - 2) Whether the site has Title Tag?
 - 3) Whether the site has Header Tags? If yes, which tags are there?
 - 4) Whether the Images used has Alt Attributes?
 - 5) What is the comment about usability?
- SOP 2: Assume that you are appointed as a Digital Marketing Expert for a company name as XYZ Marketing Private Ltd. They have a website hosted on a web server. Suggest your client changes needed in the website to improve the speed of website and also make him aware about following
 - 1) Total numbers of recommended improvements are?
 - 2) Mention grades given for the following points
 - i) SEO
 - ii) Usability
 - iii) Performance
 - iv) Security
 - 3) Check for broken links and images.
 - 4) Whether the website has links with the social media? If yes ,Give name of the social media .

(Take the name of the website from your teacher/examiner and get a report for Search Engine Optimization with tool freely available.)

- **SOP 3:** By using any Audit tool freely available on Internet optimize the website given by the teacher/examiner and write down the following findings.
 - 1) What is the name of the Website
 - 2) Whether all CSS and javascript files seem visible to Googlebot?
 - 3) Whether the webpage seems to display well on mobile devices?
 - 4) Check whether the webpage is secured with HTTPS?
 - 5) Check whether the website has robot.txt file or not.

- SOP 4: With the help of SEO tool which is freely available (e.g. https://www.seoptimer.com/) optimize that website and write down the following findings. (URL of the website is being provided by the examiner /teacher.)
 - 1) Write the name of the website you are optimizing.
 - 2) Check for broken links and images.
 - 3) Check and review back links are present or not
 - 4) Whether the website flagged as safe by popular malware scanners? Name any two malware scanners.
 - 5) Check the following list and say Yes or No
 - i) Mobile Viewports used?
 - ii) iframes used?
 - iii) Legible Font Sizes used?
 - iv) Tap Target Sizing on a touchscreen?

(**Note:** you can use any Search Engine Optimization Tool which is freely available over the internet, such as https://www.seoptimer.com, https://www.woorank.com, https://seositecheckup.com etc.)

3. Computerised Accounting with GST

SOP 1: Mr. Ravindrakumar started business by the name M/s Bitwise Trading Company in the year 2019

COMPANY DETAILS

Company Name: M/s Bitwise Trading Company

Address: 102 M.G. Road, Bhavana Nagar, Latur - 413512

State: Maharashtra

www.bitwisetrading.com Website:

E-mail Id: info@bitwise.com

Maintain: Account with Inventory

Financial Year From: 01-04-2019 01-04-2019

Books Begin From:

With the help of any open source or free education version accounting software pass the following transactions in appropriate vouchers to display and print various reports

such as Trial Balance, Profit & Loss A/c, Balance Sheet and Day Book.

Date	Particulars	Amount (Rs)
1/04/2019	Mr. Ravindrakumar started business with cash	5,00,000
1/4/2019	Purchased goods from Sharada Steel works on credit	20,000
2/5/2019	Paid salary to staff	5,000
1/6/2019	Cash deposited into Bank of India	50,000
2/6/2019	Sold goods to Rakesh Enterprises on cash	25,500
2/7/2019	Purchased Machinery	10,000
2/12/2019	Received Interest on cash deposited in Bank of India	2,000

SOP 2: With the help of any open source or free education version accounting software create a company using following details:

Company Name: M/s Bags and Baggage Traders

Company Address: J. M. Ratna Road, Near Maruti Mandir,

Ratnagiri, Maharashtra Pin Code 415612

Website: www.bagsandbaggagetraders.com

Email id: contact_us@ bagsandbaggagetraders.com

GSTIN: 27STUVW1234C2Z1

Books Beginning: 01/04/2019

Enter the following transactions in appropriate vouchers using by applying GST. Print GST computation Report and Tax Invoice

- 1) On 01/08/2019 purchased 150 pieces of Leather Handbags @ Rs.2500 per piece, with GST 28% from Genuine Leather Bags, Sai Baba Nagar, D.P.Road, Navi Mumbai, Maharashtra, Pin code 400039 with GSTIN 27LMNOP5678V2Z2.
- 2) On 02/09/2019 Sold 80 pieces of them @Rs.3500 per piece, GST 28%, to M/s Shoppers Stock ,Pari Industrial Estate, Chiplun, Maharashtra, Pin code 415605 with GSTIN 27JKLMN4321C1Z2

Print GSTR-2 and Sales Tax Invoice

SOP 3: With the help of any open source or free education version accounting software enter the following transactions in appropriate vouchers by creating a company. Company details are as below.

Company Name: M/s Swastik Garment Suppliers

Company Address: M. G. Road, Industrial Estate,

Aurangabad, Maharashtra Pin Code 431001

Website: www.swastikgarments.com

Email id: info@ swastikgarments.com

GSTIN: 27KLMNA4321V1Z2

Books Beginning: 01/04/2017

1) On 01/07/2017 Purchased 150 pieces of T-shirts @Rs. 450 per piece with GST 12% from M/s. Jalaram Textiles, 1/05 Sector B, Gandhi Nagar, Ahmadabad, Gujarat Pin code 382010.

2) On 02/07/2017 Sold 100 T-shirts @Rs.600 per piece with GST 12% to M/s Dress Align Garments, Shirdi. Ahmednagar, Maharashtra – 423107.

Print GST computation Report and Sales Tax Invoice

SOP 4: Happy World Tours and Travels Company from J.M. Road, Deccan Gymkhana, Pune, Maharashtra 411004 (GSTIN 27STUVW1212T1Z2) is a tourism company that provides travel and tourism related services to the general public. The company renders services like air ticket booking, railway ticket booking, group tour booking, vehicle on rent etc. Following transactions has taken place in the month of November 2019. With the help of any open source or free education version accounting software enter the following transactions in appropriate vouchers of Happy World Tours and Travels Company with GST calculations.

Sr	Date	Transaction
1	1/11/2019	Received Commission Rs50000 with 18% GST from M/s Success Business Agency, Pune Maharashtra on group tour booking by cheque Bank of India (Chq. No. 302010)
2	2/11/2019	A Motor Cab Rented to the regular client Mr. Ajay Singh Gupta, Aundh, Pune on a cost of Rs15000 with 5% GST by cash.
3	2/11/2019	Paid Rs. 20000 for Website Development charges to M/s Soft Corner India Limited, Karnataka with GST 18% GST by cheque Bank of India (Chq. No. 302255)

Print GST Reports GSTR-2 and GST Annual Computation.

4. Database concepts using LibreOffice Base

SOP 1:

- > Create a table student with fieldnames- rollno, studname, class, div, city, dob etc.
- Insert minimum 8 records.
- > Create a form based on student table.

SOP 2:

- Create a table employee with fields names- empid, empname, empdept, empqual, empjoindate, empsal etc. Insert minimum 8 records.
- Create queries to display records from the employee table.
 - 1. where employee qualification is "MBA"
 - 2. where employee department is "Accounts".
 - 3. where employee salary >70000
 - 4. where employee name is "Mr. Suhas Kale"

SOP 3:

- Create table Product with fieldnames prodid, prodname, qty, rate, modelyear with appropriate data type. Insert minimum 8 records.
 - 1. Generate report to display records in ascending order of prodname.
 - 2. Generate report to display records in descending order of product rate.
 - 3. Generate report to display modelyear wise product list
 - 4. Build a query to display amount (qty*rate).
 - 5. Generate a bill report with appropriate titles and calculate amount for each record.



Appendix - I

SEO Report for one sample website



Your Agency Limited 555 9999 enquiries@youragency.com youragency.com

Website Report for test.com

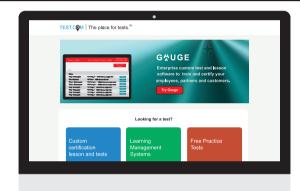
This report grades your website on the strength of a range of important factors such as on-page SEO optimization, off-page backlinks, social, performance, security and more. The overall grade is on a A+ to F- scale, with most major industry leading websites in the A range. Improving a website's grade is recommended to ensure a better website experience for your users and improved ranking and visibility by search engines.

test.com's Result



Your page could be better

You have 15 Improvements Recommended







SEO Results



Your SEO could be better

Your page has some level of optimization but could be improved further. SEO optimization is important to ensure you can maximize ranking potential and drive traffic to your website from search engines. You should ensure you page fulfils common recommended improvements outlined here before moving onto more advanced SEO strategies.

HTML HEADER

Title Tag



Your page does not appear to have a title tag. Title tags are very important for search engines to correctly understand and categorize your content.

Meta Description Tag



Your page appears to be missing a meta description tag. A meta description is important for search engines to understand the content of your page, and is often shown as the description text blurb in search results.

BODY CONTENT

Header Tags



Your page is not making effective use of header tags.

HTML header tags are an important way of signaling to search engines the important content topics of your page, and subsequently the keywords it should rank for.

Header

Tag	Frequency
H1	0
H2	0
H3	0
H4	0
H5	0
H6	0

Keyword Consistency



Your page's main keywords are not distributed well across the important HTML tags.

Your page content should be focused around particular keywords you would like to rank for. Ideally these keywords should also be distributed across tags such as the title, meta and header tags.

Keyword	Title	Meta Description	Headings	Page	
Keyworu	Title	Tag	Tags	Frequency	
browser				2	
site				1	
requires				1	
javascript				1	

Keyword	Title	Meta Description Tag	Headings Tags	Page Frequency	
cookies				1	
enabled				1	
please				1	
change				1	
settings				1	
upgrade				1	

Amount of Content



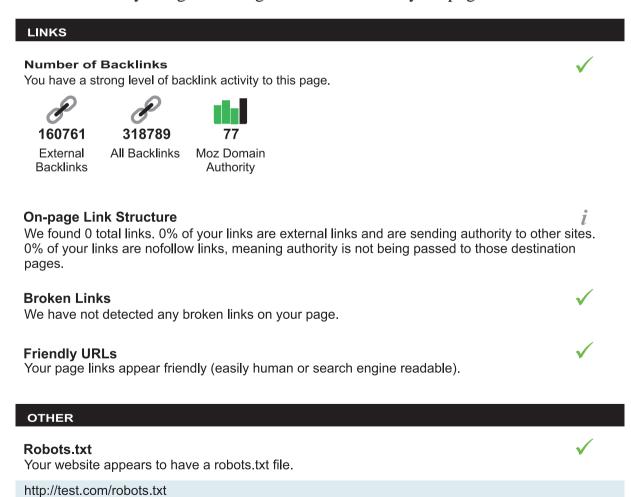
Your page has a low volume of text content which search engines can interpret as 'thin content'. It has been well researched that higher text content volumes are related to better ranking ability in general.

Word Count: 18

Image Alt Attributes

V

You do not have any images missing ALT attributes on your page.





×

We have not detected or been able to retrieve a XML sitemaps file successfully.

A sitemap includes a list of your pages that are available for crawling, as well as other useful

information for search engines such as last update times and priority of pages. Sitemaps are recommended to ensure that search engines can intelligently crawl all of your pages.

Analytics



We could not detect an analytics tool installed on your page.

Website analytics tools like Google Analytics assist you in measuring, analyzing and ultimately improving traffic to your page.

Usability



Your usability is very good!

Your page is highly usable across devices. Usability is important to maximize your available audience and minimize user bounce rates (which can indirectly affect you search engine rankings).

Device Rendering

This check visually demonstrates how you page renders on different devices. It is important that your page is optimized for mobile and tablet experiences as today the majority of web traffic comes from these sources.





Use of Mobile Viewports

√

Your page specifies a viewport matching the device's size, allowing it to render appropriately across devices.

Flash Used?



No Flash content has been identified on your page.

iFrames Used?



There are no iFrames detected on your page.

Favicon



Your page has specified a favicon.

Legible Font Sizes



The text on your page appears to be legible across devices.

Tap Target Sizing



The links and buttons on your page appear to be appropriately sized for a user to easily tap on a touchscreen.

Performance Results



Your performance is very good!

Congratulations, your page has performed very well in our testing meaning it should be reasonably fast and responsive for users. Performance is important to ensure a good user experience, and reduced bounce rates (which can also indirectly affect you search engine rankings). Continue to monitor your performance over time to ensure there are no periodic fluctuations.

Page Speed Info



Your page's server response time is reasonably low which is good for load speed and user experience.

Server Response



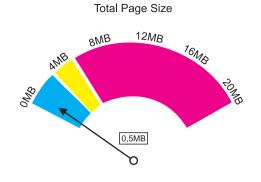
All Page Scripts Complete

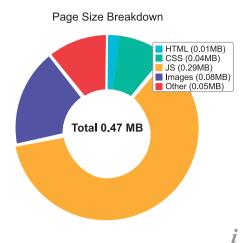


Page Size Info



Your page's file size is reasonably low which is good for Page Load Speed and user experience





Number of Resources

This check displays the total number of files that need to be retrieved from web servers to load your page. As a general rule, having more files to retrieve increases the number of server requests and can subsequently increase page load time. It is a good idea to removing unneccessary files or consolidate files like styles and scripts where possible.





Resources



Number of

CSS



Resources

CSS Resources

JavaScript Errors

Your page is not reporting any JavaScript errors.

GZIP Compression

Your website is using GZIP compression.

Optimize Images

Your page appears to include images which are poorly optimized. Properly formatting and compressing images can have a significant impact on page load performance.

Minification

All your JavaScript and CSS files appear to be minified.

W3C Validity

Your page does not appear to be W3C compliant. W3C compliance ensures the use of modern standards and improves the likelihood of your page rendering appropriately in future browser versions.

Errors: 5
Warnings: 3

Deprecated HTML

No deprecated HTML tags have been found within your page.

Inline Styles

/

No inline styles have been found within your page's HTML tags.

Social Results



Your social needs improvement

You appear to have a weak social presence or level of social activity (or we may just not be able to see your profiles!). Social activity is important for customer communication, brand awareness and as a marketing channel to bring visitors to your website. We recommend that you list all of your profiles on your page for visibility, and begin to build a following on those networks.

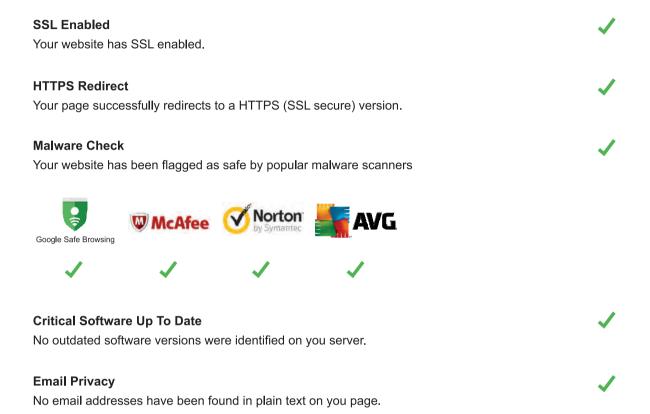
Facebook Connected No associated Facebook Page found as a link on your page.	×
Twitter Connected No associated Twitter profile found as a link on you r page.	×
Twitter Connected No associated Google+profile found linked on your page.	×
Twitter Connected No associated Instagram profile found linked on your page.	×
Twitter Connected No associated Youtube channel found linked on your page.	×
Twitter Connected No associated LinkedIn profile found linked on your page.	×
Social Shares Your page appears to be being shared on social networks.	✓
621543 0 4911 7344 Facebook LinkedIn Pinterest Stumbleupon	

Security Results



Your security looks very good!

We haven't identified obvious security problems on your website. Security is important to ensure your website protects user data, doesn't become compromised or experience downtime or data loss. We recommend ongoing patching and the continuous use of protective monitoring tools.



Technology Results

Technology These softwayour page.	List are or coding libraries have beer	n identified on	i
	Technology	Version	
W	Google Analytics	UA	
	Google Tag Manager		
	ZURB Foundation		
(C)	jQuery		
Server IP A 69.172.200.23			i
DNS Server ns65.worldnic ns66.worldnic	.com		i
Web Server			i
Charset text/html			i

Recommendations

SEO	Add a title tag (ideally between 10 and 70 characters)	High Priority
SEO	Include a meta description tag	High Priority
SEO	Use your main keywords across the important HTML tags	Medium Priority
SEO	Implement a XML sitemaps file	Medium Priority
Social	Create and link your Facebook Page	Medium Priority
SEO	Make greater use of header tags	Medium Priority
Performance	Ensure your page is W3C compliant	Low Priority
SEO	Increase Page text content	Low Priority
Performance	Optimize your images to reduce their file size	Low Priority
SEO	Implement an analytics tracking tool	Low Priority
Social	Create and link your Twitter profile	Low Priority
Social	Create and link an associated Google+ profile	Low Priority
Social	Create and link associated Instagram profile	Low Priority
Social	Create and link an associated Youtube channel	Low Priority
Social	Create and link an associated LinkedIn profile	Low Priority

For information purpose only

Appendix - II

Steps for google analytics are as follows:

- 1. Open the website https://analytics.google.com.
- 2. Login with your Gmail Id and password.
- 3. Click on 'Start Measuring' button.
- **4.** From Account setup type Account name (Required) relevant to your website e.g. here the website is hsc board practical, so it is mentioned in Account name. Click on Next button.

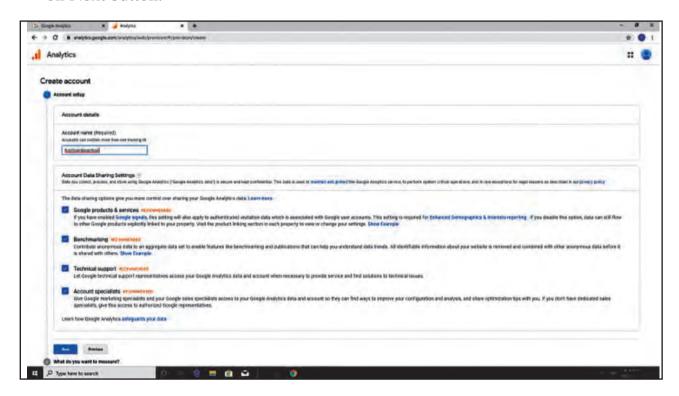


Fig. 2.10: Account Setup Screen

5. Select any one option from 'What do you want to measure'? Web/Apps/Apps & Web and click on 'Next' button.

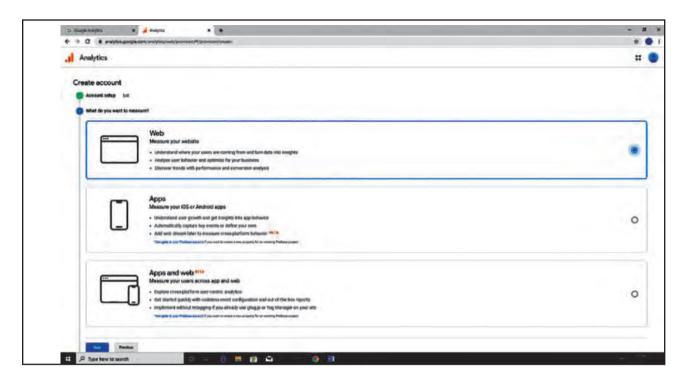


Fig. 2.11: What do you want to measure Screen

6. In 'Property setup' option type Website name, Website URL, Industry Category, Reporting Time Zone and click on 'Create' button

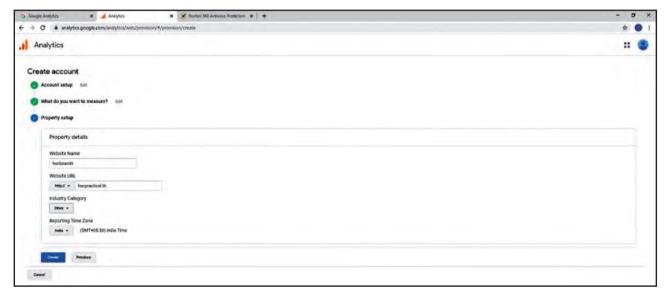


Fig. 2.12: Property setup Screen

- 7. Choose country as India and Accept the terms by selecting 'I Accept' checkbox and then click on 'I Accept' button
- **8.** You will come across Tracking Id page along with website tracking JavaScript code.

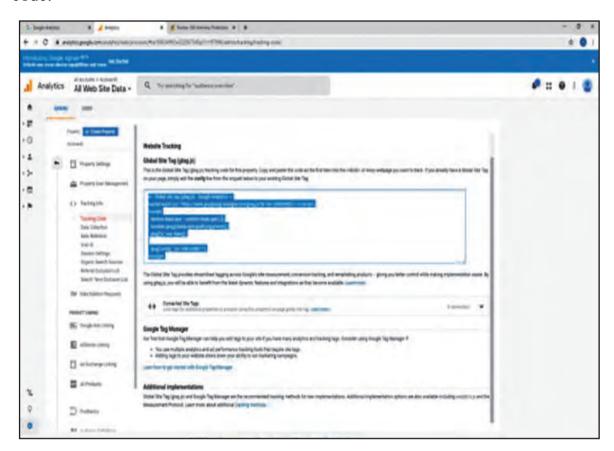


Fig. 2.12: JavaScript Code Screen

```
<!-- Global site tag (gtag.js) - Google Analytics -->
<scriptasync src="https://www.googletagmanager.com/gtag/
js?id=UA-158034982-1"></script>
<script>
window.dataLayer = window.dataLayer || [];
functiongtag(){dataLayer.push(arguments);}
gtag('js', new Date());
gtag('config', 'UA-158034982-1'); </script>
```

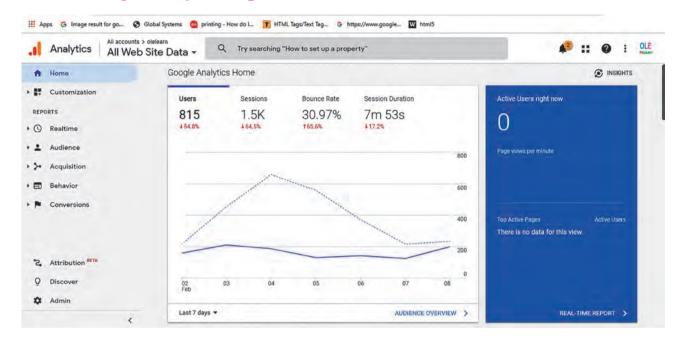
Fig. 2.13 : JS Code to be copy

- **9.** Copy the above generated JavaScript code and paste it in the header section of all the web pages of your website.
- **10.** Upload those web pages again and refresh the analytics page to view the reports.

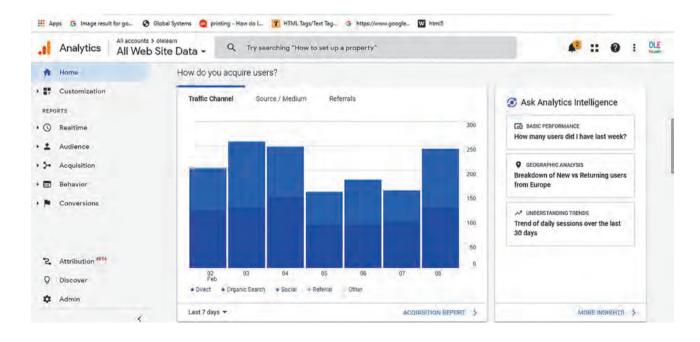
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Appendix - III

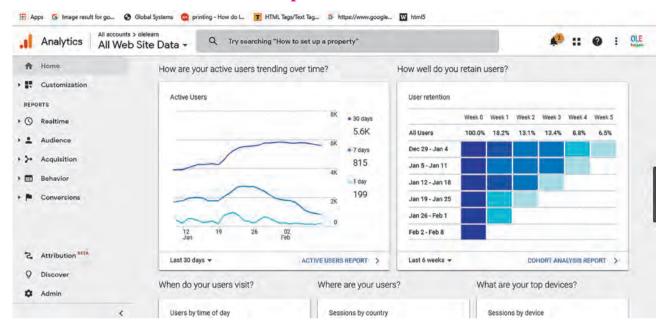
Overall Google Analytics Report



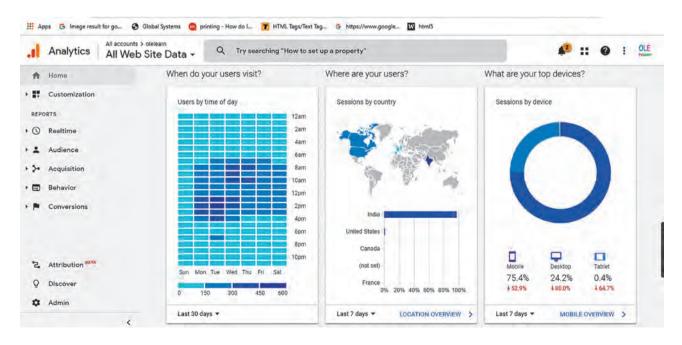
Organic / Non organic Search Report



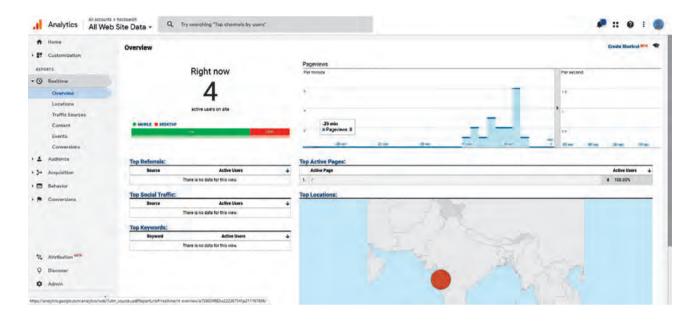
Active Users and Retained users report



Users Access Times / Locations / Devices



Real Time Users Report



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Appendix - IV

Accounting Voucher Display

	er No.	2-De Mode Other	C-201 /Terms Refere	9 s of Payment ence(s)		
elivery Not upplier's R 01 uyer's Ord espatch D	er No.	Other Dated	/Terms	s of Payment ence(s)		
upplier's R 01 uyer's Ord espatch D	er No.	Other	Refere	ence(s)		
01 uyer's Ord espatch D	er No.	Dated				
uyer's Ord espatch D	ocument No	-		e Date		
espatch D	ocument No	-		e Date		
		. Delive	ry Not	e Date		
		. Build	19 1400	CDate		
espatched	through		Delivery moter Date			
	Despatched through			Destination		
erms of De	Pince					
ISN/SAC	Quantity	Rate	per	Amount		
	30 114	12 000 00	110	3,60,000.00		
				50,400.00 50,400.00		
	30 Ut			₹ 4,60,800.00		
				E. & O.E		
		01.1	+ 1.00	7.00		
		-		Total t Tax Amount		
14%	50,400.00					
14%	50,400.00			.00 1,00,800.00 .00 1,00,800.00		
	Cent Rate	30 Ut 30 Ut Central Tax Rate Amount	30 Ut 12,000.00 30 Ut Central Tax State Rate Amount Rate A	30 Ut 12,000.00 Ut 30 Ut Central Tax State Tax Rate Amount Rate Amount		

GST Annual Computation Report

	Shree Ganesha Tr Shahupur Kolha	i Estate			
	GST Annual C 1-Apr-2019 to				
GSTIN 27ABCDE2345F1Z4					Page
Total number of vouchers for th	e period				
Included in Annual Computation Included in HSN/SAC Summar Incomplete HSN/SAC informati Not relevant for Annual Computa	y ion (to be provided) 2				
Incomplete/Mismatch in informa					
Particulars	Taxable Value Integrated Tax Amount	Central Tax Amount	State Tax Amount	Cess	Ta:
Liability					
Outward and inward Supplies on Which Tax is Payable (Including Advances)	3,60,000.00	50,400.00	50,400.00		1,00,800.0
Outward Supplies on Which					
Tax is not Payable Total Liability	3,60,000.00	50,400.00	50,400.00		1,00,800.0
Input Tax Credit					
input Tax Credit		70,000.00	70,000.00		1,40,000.0
ITC Reversal and Ineligible ITC Declared					
Input Tax Credit After Reversal & Ineligible ITC		70,000.00	70,000.00		1,40,000.0
HSN/SAC Summary					
Summary of Outward Supplies					
Summary of Inward Supplies					

GSTR-2

	nesha Trad Shahupuri E Kolhapu		ny .		
	ST Compu -2019 to 30				
GSTIN/UIN : 27ABCDE2345F1Z4				1-Apr-2	Page 1 019 to 30-Apr-2019
Returns Summary					
Number of vouchers for the period					2
Included in returns					1
Invoices ready for returns	0				
Invoices with mismatch in information Not included in returns due to incomplete information	3				0
Not relevant for returns					1
Incomplete HSN/SAC information (to be provided)					0
Particulars	No. of	Taxable	Total	Total ITC	Reconciliation
raiticulars.	Invoices	Value	Tax	Available	Status
To be reconciled with the GST portal	Missess			11020253	2,200.2
B2B Invoices - 3, 4A Credit/Debit Notes Regular - 6C	-1	5,00,000.00	1,40,000.00	1,40,000.00	
To be uploaded on the GST portal					
B2BUR Invoices - 4B Import of Services - 4C Import of Goods - 5 Credit/Debit Notes Unregistered - 6C Nil Rated Invoices - 7 - (Summary) Advance Paid -10A - (Summary) Adjustment of Advance - 10B - (Summary)					
Total Inward Supplies		5,00,000.00	1,40,000.00	1,40,000.00	
ITC Reversal/Reclaim - 11 - (Summary)					
Total No. of Invoices	- 1				
HSN/SAC Summary - 13					
Reverse Charge Liability to be Booked					
Reverse Charge Inward Supplies Import of Service Advance Payments					0.00
Amount Unadjusted Against Purchases Purchase Against Advance from Previous Periods					

GSTR-3B

Shree Ganesha Trading Company Shahupun Estate Kolhapur GST Computation 1-Apr-2019 to 30-Apr-2019 Page 1 1-Apr-2019 to 30-Apr-2019 GSTIN/UIN : 27ABCDE2345F1Z4 Returns Summary Total number of vouchers for the period Included in returns 2 Participating in return tables 2 ø No direct implication in return tables Not relevant for returns 0. Incomplete/Mismatch in information (to be resolved) 0 Tax Amount Table Particulars Taxable Value No. 3.1 Outward supplies and inward supplies liable to reverse charge 3,60,000.00 1,00,800.00 3.2 Of the supplies shown in 3.1 (a) above, details of inter-state supplies made to unregistered persons, composition taxable persons and UIN holders Eligible ITC 1,40,000.00 Value of exempt, nil rated and non-GST inward supplies 5.1 Interest and Late fee Payable Reverse Charge Liability and Input Credit to be booked Reverse Charge Inward Supplies 0.00 Import of Service 0.00 Input Credit to be Booked **Advance Payments** Amount Unadjusted Against Purchases 0.00 Purchase Against Advance from Previous Periods



Career Opportunities

Cloud Computing Engineers Basic Requirements:

Cloud engineers typically have at least a bachelor's degree in computer science or information technology. Those in the field often have years of software development experience, working with a variety of programming languages such as Java, Angular JS, C++, and Python.

Cloud computing engineers define, design, build, and maintain systems and solutions leveraging systems and infrastructure managed by cloud providers such as Amazon Web Services (AWS) and Microsoft Azure. Following are some of job roles in the cloud computing domain.

- Cloud Architect
- Cloud Consultant
- Cloud Product and Project Manager
- Cloud Services Developer
- Cloud Software and Network Engineer
- Cloud System Administrator
- Cloud System Engineer

Computer Network Specialists Basic Requirements:

Computer network specialists and analysts define, design, build, and maintain a variety of data communication networks and systems. They typically have a bachelor's degree in computer science or a related field. Some also have a master's degree in business administration (MBA), with a focus on information systems. Network related jobs and projects. The job profiles are as-

- Computer and Information Research Scientist
- Computer and Information Systems Manager
- Computer Network Architect
- Computer Systems Analyst
- Computer Systems Manager
- IT Analyst
- IT Coordinator
- Network Administrator
- Network Architect
- Network and Computer Systems Administrator
- Network Engineer
- Network Systems Administrator
- Senior Network Architect
- Senior Network Engineer
- Senior Network System Administrator
- Telecommunications Specialist

Computer Support Specialist

Basic Requirements:

The computer user support specialist must be knowledgeable about the functioning of a computer system. Some of the employers appoint the technicians on the basis of an associate's degree or postsecondary classes, while others prefer the applicants to have a bachelor degree.

Computer support specialists and network administrators help computer users and organizations. Some of these workers support computer networks by testing and evaluating network systems and ensuring that the day-to-day operations work. Others provide customer service by helping people with their computer problems. Some require a

bachelor's degree, while others need an associate degree or post-secondary classes. They work as-

- Customer Support Administrator
- Customer Support Specialist
- Desktop Support Manager
- Desktop Support Specialist
- Help Desk Specialist
- Help Desk Technician
- IT Support Manager
- IT Support Specialist
- IT Systems Administrator
- Senior Support Specialist
- Senior System Administrator
- Support Specialist
- Systems Administrator
- Technical Specialist
- Technical Support Engineer
- Technical Support Specialist

Database Administrator Basic Requirements:

Many employers prefer database administrators with at least a bachelor's degree in computer science or a related field. In some cases, a master's degree is required for higher-level positions. A bachelor's degree program is a 4-year program and is a prerequisite to a 2-year master's degree program.

Database administrators help store and organize data or companies and/or customers. They protect the data from unauthorized users. Some work for companies that provide computer design services. Others work for organizations with large database systems, such as educational institutions, financial firms and more. They can be employed as-

- Data Center Support Specialist
- Data Quality Manager
- Database Administrator

Senior Database Administrator Information Technology Leadership Basic Requirements:

Obtain a bachelor's degree in computer science or information technology. Develop IT and leadership experience in a variety of IT roles, from entry-level support positions to IT manager. Most IT director positions require 10 years of experience. Earn your master's degree.

Leadership in IT draws from candidates with strong technology backgrounds and superior management skills. They have experience in creating and implementing policies and systems to meet IT objectives, and the ability to budget the time and funds necessary.

- Chief Information Officer (CIO)
- Chief Technology Officer (CTO)
- Director of Technology
- IT Director
- IT Manager
- Management Information Systems Director
- Technical Operations Officer

Information Security Specialist Basic Requirements:

Hiring managers for IT security specialist positions generally require at least an undergraduate degree (associate or bachelor) in information security, computer information systems, network security, computer science or a related field of study.

The increased incidence of security breaches and the associated danger of identity theft has enhanced the importance of protecting data on commercial and governmental sites. Information securities analysts help defend an organization's computer network and computer systems. The job roles offered to them are-

- Information Security
- Security Specialist
- Senior Security Specialist

Software/Application Developer Basic Requirements:

Most computer software development jobs require bachelor's degrees in computer science or software engineering. These programs have significant math requirements that include a sequence in calculus, differential equations, and linear algebra. A sequence in physics is also required.

Software developers design, run, and test various computer programs and applications. Application Developers create new applications and code solutions. They usually have a bachelor's degree in computer science or a related field. They also have strong programming skills, so can be employed as-

- Application Developer
- Applications Engineer
- Associate Developer
- Computer Programmer
- Developer
- Java Developer
- Junior Software Engineer
- .NET Developer
- Programmer
- Programmer Analyst
- Senior Applications Engineer
- Senior Programmer
- Senior Programmer Analyst
- Senior Software Engineer
- Senior System Architect
- Senior System Designer
- Senior Systems Software Engineer
- Software Architect
- Software Developer

- Software Engineer
- Software Quality Assurance Analyst
- System Architect
- Systems Software Engineer
- Mobile Application Developer

Web Developer

Basic Requirements:

Many employers prefer prospective Web developers to hold a bachelor's degree in computer science or a related field. Coursework often includes programming, database management, mathematics, Web design and networking.

Web developers design, create, and modify websites. They are responsible for maintaining a user-friendly, stable website that offers the necessary functionality for their client's needs. Some jobs require a bachelor's degree, while others need an associate degree, including classes in HTML, JavaScript, or SQL. This education can help to get employment as-

- Front End Developer
- Senior Web Administrator
- Senior Web Developer
- Web Administrator
- Web Developer
- Webmaster
- UX Designer

Professional certificate courses like RHCE, ORACLE, Software Testing etc. can be done to enhance the career opportunities.