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SYMBIOSIS CENTRE FOR INFORMATION TECHNOLOGY

Symbiosis International University

(Established under section 3 of the UGC Act, 1956 vide notification No. F 9-12/2001-U 3 of Government of India)

Accredited by NAAC with 'A' Grade

Founder: Prof. Dr. S. B. Mujumdar, M.Sc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

**A Report on the
Search Engine Optimization and Web Analytics
at
*HawksCode Softwares Pvt. Ltd.***

Submitted by

**Keerti Chouhan
16030241070
MBA-ITBM
(2016-18)**

Year of submission 2017



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CERTIFICATE

This is to certify that the project entitled Star Car Removal, based on Search Engine Optimization and Web Analytics for HawksCode is a bonafide work done by Keerti Chouhan (16030241070) of MBA ITBM 2016-18 in partial fulfillment of the requirements for the degree of Masters of Business Administration of this Institute.

Internal Evaluator

Name & Signature

External Evaluator

Name & Signature

Director

Date:

Place: Pune

Seal of the Institute



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INTERNSHIP CERTIFICATE



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ACKNOWLEDGEMENT

I would like to take this opportunity to thank SCIT for providing me an opportunity to work in the industry as an intern as part of the curriculum. This, undoubtedly, is a very significant and encouraging aspect about the whole curriculum. The learning in this period has helped me enhance my knowledge about the domain. It would not have been possible to complete this project without the support, guidance and patience of the following people. It is to them; I owe my deepest gratitude.

I would like to thank my corporate mentor Mr. Sunil Sharma (CEO, HawksCode Softwares Pvt. Ltd. Jaipur), for his invaluable inputs and encouragement throughout the duration of internship. I am highly grateful to him for his guidance and constant support as well as for providing necessary information regarding the project.

A special word of thanks to Prof. Pradnya Purande, Internal Mentor, Symbiosis Centre for Information Technology, Pune for constantly extending his support and guidance throughout the Internship Program without whom the project would not have been a success. His constant support boosted us to conduct the required activities in time and to achieve the desired results.

A special word of thanks to Dr. Dhanya Pramodh, Director, and Ms. Savitha Nair, Placement Officer, Symbiosis Centre for Information Technology, Pune, for giving me the opportunity to work for an organization having reach to multiple domains which helped me to learn multiple things in a short span.

Keerti Chouhan
MBA (ITBM), 2016-18



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ABSTRACT

HawksCode Softwares Pvt. Ltd. is a Jaipur based software company with global footprints in providing value services and products. The company has multi-faceted business from services like web and mobile based applications to SEO and SMO services and product outsourcing.

In the company, I am worked on Search Engine optimization for Star Car Removal, Australia. Star Car Removal's business is to take unwanted, damaged, unlicensed, old, used and wrecked vehicles from customers and pay for them in return. It focuses on environment safety and proper disposing off the junk cars to ensure clean and safe environment.

In the duration of 13 weeks, I worked as a corporate trainee where the role was not limited to only one project. The major work included the Business Analysis of the SEO project, followed by optimizing search engine and applying analytics to it.

As a Business Analyst Intern, I analyze, share and work on client's requirements which in this case is to increase traffic on their website so that it becomes popular and drives business. My task is learning, understanding and implementing on page and off page SEO on the project. Three factors are targeted for it- content, technical set up and off-site factors. Technical set up comes under on page SEO and off-site factors drive off page SEO.

Content building task involved finding page ranking, keywords and keyword density. Offsite factors include pay per click advertising, social media marketing, local search directory inclusion, on page elements, analytics, content development, link building, keyword development etc. Technical setup includes tags, structure and navigation of the site which is designed effectively for better accessibility and page ranking. Implementation of these factors helped in targeting audience in the best possible way. Reports were being generated weekly to know the work progress and various status like key



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word status, ranking status etc. This weekly monitoring and progress work has helped in achieving SEO goals.

The project entered the next phase to retain that traffic and optimize the site's usage. More focus was given to website analytics. It is more of onsite changes. Google analytics tool was used to check for the web analytics statistics, and to derive useful insights from it. Changes were made to the site as insights suggested. For example, stats showed page download time was more so all the causes behind it were checked and issues were fixed to make page download time less.

The third phase of the project were to forecast value parameters like page views of our E business and take data driven decisions; to access value of channel grouping and sessions and to have better visualization of the web data. This was done using R. A connection was made between Google Analytics and R, followed by predictive and prescriptive modelling and ggplot2 visualizations in R.

I worked on all the phases of the project and overall, it was a great learning experience which gave me insights of various SEO and analytics work. I learnt the role of Business Analyst by working on live projects, by communicating with clients and analyzing their requirements. As HawksCode Software's is a growing Organization, it gives great importance to high quality services & the learning that I got by working there is of immense value.



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Chapter 1: Introduction

1.1 COMPANY INTRODUCTION

HawksCode Softwares Pvt. Ltd is a global MNC delivering services to IT companies, solutions to enterprises worldwide, leaving its footprint across the Globe. They built robust and profitable practices in Application software, Website Developments and e-Business providing the winning edge to the clients by and support enterprise-wide transformation. The experience and expertise in executing large software development projects is a complementary mix of project management, Business Development, business process analysis and enterprise class technology[4].



Figure 1 : HawksCode Logo

1.1.1 History

HawksCode Softwares was founded in 2012 by a young CEO Mr. Sunil Sharma with a dream to provide best IT solutions world-wide. Sunil Sharma is an IT professional, very young CEO and Entrepreneur. He is a leader, an skilled manager, an ardent problem solver, an auspicious overachiever and an authoritative team player. Having worked on countless projects, HawksCode Softwares has gained an unbeaten business and technological expertise. The company has built a



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large database of knowledge that is applied to deliver solutions that meet customers' needs, expectations and budget.

1.1.2 Vision and Values

Our mission is to enable people and companies to increase their business value through the use of IT technologies.

We aim at delivering services which will open new possibilities for our customers and allow them to work effectively and creatively.

"Our values are: people, customers and quality"[5].

1.1.3 Operating Principles

- Verifiable Information
- Cultural Collaboration
- Smart Communication
- Ingenuity and Professionalisms
- Operational Excellence

1.1.4 Methodology

HawksCode Softwares is well structured **Outsourcing Company in India**, to deliver successful solutions for complex business problems of different industries across the globe. The Ladder for our success is well coordination with our clients, as they are the main part of any business and proper blend for developing external IT environment and our internal organizational environment [5].



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1.1.5 Our liberal but disciplined approach towards outsourcing business

- We make flexible policies for faster growth of our internal working environment as well as our external outsourcing business.
- Our processes and methods are easy to implement.
- We have optimum uses of resources.
- Our Methodology are very well coped up with our client's requirements as they are very flexible.
- Appropriate combination of fix methodological rules and flexible aspects of company rules is helping company to get outsourcing business.

1.1.6 Business Model

"A business model of any business is an idea or concept for successful operation of business, identify sources of revenue and making money profitably".

It is concept for transformation of inputs into value adding outputs. **HawksCode Softwares** is **IT Solution Providing Company in India** and follows various strategies, trading practices, operational processes and policies that consists of perfect business model to facilitate offshore customers. HawksCode Softwares defines its business model under following model blocks.

• PROJECT BASED SOLUTIONS

HawksCode Softwares provides a vast range of IT Solutions on Project & Product basis - modifying the level of support to your specific needs. We provide technical assistance and advice, Create and recommend a solution, Develop a practical implementation plan for offshore IT projects.



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Our skilled **Project Manager's** use to oversee the project with his team. We build our team with **Experienced IT professionals** who have not only sound business skills, but extensive implementation and project-management experience as well which helps the organization to achieve success.

• HIRE DEDICATED DEVELOPER BASED SOLUTIONS

We have range of IT professionals who works independently for offshore hire base concept. They have enough experience of working for offshore clients.

- Software Engineers & Developers
- IT Consultants
- Creative Web Graphic Designers
- Expert Quality Assurance Analysts
- Specialist Software Tester
- Technical Writers
- Wide Visional System Analyst
- Network Engineers
- System Security Experts
- SEO & SMO Specialist

• CUSTOMER RELATIONSHIPS

We at HawksCode believes in providing full customer satisfaction by building and maintaining relationships with our clients. We have established ourselves by giving solutions to our clients and customers for their business needs. We believe in and deliver Quality work to our clients which is the basis our long term relationships with our existing clients.



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Customer orientation is highly important for us. We have developed and build our core competence in all operations which has allowed us to develop an impressive and diverse client list with maintained relations with them.

1.1.7 HawksCode INDUSTRIES

HawksCode has business into multiple industries, spreading its presence into each and every possible sector.

Some of the industries are:

- Communication
- Financial
- Education
- Healthcare
- Hospitality
- Cards and Payments
- Media and Entertainment
- Banking
- Retail and many more.

➤ COMMUNICATION

From the past years, new technologies are exploding in the market like 4G/LTE, cloud services and Smartphone's which have changed the view of information sharing. IT companies are required to provide full support to the communication services by managing the IP address coverage, adopting new technologies to realize next generation.

We at HawksCode believe that communication is the real work of the leadership and thus we will bring services which can enhance the existing communication services. As the technology emerges,



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it increases the challenges for the operators also. Communication service providers are modernizing their services and therefore requires trusted partners who can collaborate with their network systems.

➤ **FINANCIAL**

We at HawksCode believe that communication is the real work of the leadership and thus we will bring services which can enhance the existing communication services. As the technology emerges, it increases the challenges for the operators also. Communication service providers are modernizing their services and therefore requires trusted partners who can collaborate with their network systems. We at HawksCode, tries to connect our clients with their goals by providing immense services on it. We will be bringing services which can bridge the gap between clients and their investments.

➤ **EDUCATION**

Education sector is spreading its roots all over the world. It is going to see a wide expansion in the market. The education sector has witnessed investment and development in the past few years. IT firms are working to improve the education by bonding with the institutes to support their processes. HawksCode education practices were built with an aim to explore the future of education. EasyShiksha and HawksCool ERP are the endeavors in the field of education.

➤ **HEALTHCARE**

Similar to other industries, healthcare is also adopting IT services in their field. They have started to use digital technology to automate their processes and also to integrate their core and support processes. The adoption of new medical devices and digitization is successful in some parts but industry faces security issues and privacy concerns.

We at HawksCode tries to improve the operational efficiencies, collaborates patients/doctors, enhance customer experience and reduces the costs. Online Health Corner is an online portal for the



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organizations which provides medical services. It is social network between hospitals, doctors, pharmacies.

1.1.8 HawksCode SERVICES

HawksCode provide various services in different fields. It basically focused with the implementation of IT services that meets customers need and satisfaction, and these services are provided by HawksCode with the blend of people, process and technology.

HawksCode basically deals into the followings:

- Consulting Services
- Application development and Maintenance
- Business Services
- Digital Marketing
- Outsourcing Services

➤ CONSULTING SERVICES

Hawkscode Software gives IT expert working in organization with customers, encouraging them how to utilize data innovation keeping in mind the end goal to meet their business destinations or give answers for the issues that customers face in their business forms. They work to enhance the structure and effectiveness of IT frameworks in different associations.

Basic HawksCode consulting services are into:

- ERP Solutions
- IT Audit
- IT System Security



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➤ **APPLICATION DEVELOPMENT AND MAINTENANCE**

As business sector strengths change the way we work together, the way organizations spend on IT is additionally evolving. Drawing on our involvement in all significant commercial ventures, we create arrangements that meet the most difficult IT issues.

Our group tails one of two ways to deal with improvement. In full lifecycle application ventures, we accept complete obligation regarding investigation, outline, usage, testing and mix of frameworks. In agreeable advancement, we work with your IT experts to together break down, outline, actualize, test and incorporate frameworks.

HawksCode services into this are:

- Website Design
- Web Development
- Android application development
- iOS Application development

➤ **BUSINESS SERVICES**

With the rapidly changing business landscape identified by changing customer preferences and the ubiquity of digital technologies, organizations are coming with strategic innovations in order to stay in competition. It has become important for the enterprises to deliver customer centric business processes with well-defined innovative technologies to gain agility and create value for customers.

HawksCode Business Services are:

- Business Applications
- Data Analytics
- Digital Services



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- Customer Experience Management
- Case study and analysis report

➤ **DIGITAL MARKETING**

HawksCode Softwares offers complete, coordinated computerized showcasing administrations that make it less demanding to build up a productive and viable online nearness inside the scholastic market anyplace on the planet.

HawksCode Digital marketing services:

- Search Engine Optimization (SEO)
- Social Media Optimization (SMO)
- Pay Per Click
- Marketing Automation
- Content Marketing

➤ **OUTSOURCING SERVICES**

HawksCode Outsourcing services is an effective strategy for maintaining and gaining competitive edge across the globe. Through an optimal blend of onsite and offshore resources, the cost-effective delivery model balances global reach with local accountability and delivery excellence.

The outsourcing services that Hawkscode delivers in business are the following:

- Business Process Outsourcing (BPO)
- Finance and Accounting Outsourcing
- Human Resource Outsourcing
- Knowledge Process Outsourcing

1.1.9 HawksCode PRODUCTS



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HawksCode Softwares is a growing company having multiple products which are running successfully and some of them are in development phase which be launched soon. EasyShiksha and HawksCool ERP are flagship products of the company which have been developed and are now introduced in the market.

Some of the Hawkscode products are mentioned below, others which are in pipeline and not yet launched are **Moondela** and **HoliPY**, where Moondela is on process site which publishes success stories of the great lives and HoliPy is a e-shopping site.

➤ EasyShiksha



EasyShiksha is an online education portal. It is an endeavor of Hawkscode Software Pvt. Limited started in 2012, with an aim to educate India for free. It's a first product which integrates many features in the field of online education. EasyShiksha provides online education which helps to create our future leaders.

➤ TheInterns



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THEINTERNS.IN

“TheInterns” is an Endeavour of HawksCode Softwares Pvt. Ltd.”. This aim's at delivering services which will open new possibilities for the Interns/Trainees/Students and allow them to work effectively and creatively. It is a platform which provide an all round development for a student entering to an IT World. It will help them to learn, innovate and build their own idea as well as to gain practical knowledge [1].

➤ **StremoFY**

“Stay Connected”

StremoFY is a best platform for the users to get connected to millions of people across the world. User can exchange digital messages through text, image, video messages. It also allows video conferencing which becomes easier for business class people to have meetings anywhere across the world.

➤ **MyInfocart**



Myinfocart.com is one of the growing online informative site in India. The main mission of MyInfocart is to provide free and genuine information to users making a bond for providing information on recurring information needs. It is the best search engine across nation which connects customer and thousands of business throughout nation.



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➤ **Online Health Corner**



Online Health Corner is a portal for medical services which provide all the medicals related services to the customers and also let the organization to market them as well.

Patients are curious to know the best hospital in their budget; Online Health Corner makes it possible for them to find the exact in just few clicks. This starts with helping them to find the best doctor and collaborate to a single healthcare account for the entire family that can securely store all the health care data so that in future they can make better healthcare decision.

Online Health Corner also promotes the respective healthcare organizations worldwide giving exposure of their services and unique specialty.

➤ **Hawks Security**



Hawks Security: Anti-Virus helps to detect and remove viruses, spyware, root kits, bots, trojans and all other types of internet security issues.



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Hawks Security features includes real-time protection, detection and removal of viruses, Trojans, spyware, key loggers etc. It also includes removable device scanning, secure file eraser, history cleaner and PC explorer that enable users to protect their PC's and provide more secure environment.

➤ **Food-N-Deals**



Food-N-Deals is a national e-commerce marketplace which connects thousands of subscribers to local merchants and delivers the best quality service worldwide. It begins with an idea of creating first and finest food platform. FoodnDeal provides great deals on food which state the quote :- "SAVE MORE EAT MORE"

➤ **My News House**

My News House is a news portal which provides latest news about all the happening of all sectors around the world. It keeps a person update to the latest trending news which is very helpful in today's world. Getting news becomes easy and quick which is available anytime in just a single blink.

My News House provides quick and latest news of latest news, study materials for all competitive exams and books. It provides Breaking News in few seconds which makes a person updated at all times.

1.1.10 HawksCode CLIENTS

HawksCode strictly maintains confidentiality of the clients' businesses. The following is the select list of our esteemed clients.

1. Amstore, London
2. BingaBinga, China



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3. USA Private Money Inc. Florida (USA)
4. Denny Digital Inc., London
5. AQT, Australia
6. Nigeria Pilot, Nigeria
7. MyoMedical Hospital, Canada
8. Global Star Communication Inc, Japan
9. Caravan Sales Today Inc., Australia
10. BBC Firm, New York and many more.





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1.2. Internship Details

Company Name	HawksCode Softwares Pvt. Ltd.
Company Mentor	Mr. Sunil Sharma
Internship Tenure	12 weeks (1 st April 2017 to 30 June 2017)
Internship Profile	Business and SEO Web Analyst
Project Title	Star Car Removal

Figure 2: Internship details

1.2.1 Profile and Functions:

I worked as a Business Analyst and SEO Web Analyst Intern in the company. As the BA and SEO Web intern my work was following:

- Business Analysis
- Bidding for projects on freelancer.
- Making business proposals to present.
- Requirements Gathering.
- Drafting and executing plans.
- Presenting activity diagram, use case diagram to clients for better understanding.
- Communicating assertively yet professionally with clients.
- Team handling, allocation of work and taking follow ups.
- Analysis of clients' proposal.



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- Understanding SEO and its tasks.
- Learning Google Analytics.
- Performing SEO work for the Star Car Removal client.
- Understanding web analytics.
- Learning various tools like SEO tool box, SE Ranking etc.
- Web Analytics using google analytics.
- Making connection of R and google analytics using an API for data extraction.
- Forecasting page views and sessions for an e-business application with R.
- Visualization with ggplot2 in R.

1.3 Project Details:

1. **Overview:** Hawkscode Softwares Pvt. Ltd. operates in various domain. One of its domain is digital marketing. It says “Digital Marketing is the latest trend of marketing in business.” Under digital marketing it offers following services:

- **Content Marketing:** Content plays a big role in ranking of the website. It should be such that it aligns with business. Backlinks can be created easily by using meaningful content on site. HawksCode works on to pull and hold customers with relevant content with the objective of targeting by content directly to enhance business[2].
- **Marketing Automation:** When customer base increases for a company it becomes really hard to target each one individually. As businesses grow, to execute and manage marketing tasks automatically, softwares and web services are used. Hawkscode works on automating marketing. It strategizes on central marketing database, an engagement marketing engine, and an analytics engine.



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- **Pay per click:** The concept behind this is whenever an ad is clicked, a customer is targeted and sponsors pay to promoters. HawksCode, has inculcated a system called 'Web Searching Advancement' which is a champion in this sector as it licenses marketing specialists for business promotion[3].
 - **Search Engine Optimization:** It is maximizing traffic on clients' site by ranking it good on search engine. For this HawksCode works on link building and on site SEO. Competitive analysis, backlinks tracing, checking Alexa ranking, content building for directory submissions etc. is included in this task.
 - **Social Media Optimization:** It is promoting a brand image on social media. It usually comes after website streamlining. HawksCode performs SMO by sharing brand on channels like Facebook, Twitter, LinkedIn, and Instagram and directing customers to a particular website.
2. **Background:** The project Star Car Removal was bagged for Search Engine Optimization and Website Analytics with desired results in a period of 4-5 months from an Australian client. Star Car Removal's business is to take unwanted, damaged, unlicensed, old, used and wrecked vehicles from customers and pay for them in return. It focuses on environment safety and proper disposing off the junk cars to ensure clean and safe environment. Keeping business in mind requirements were analyzed and understood. Along with it, overview of implementation of an SEO was taken.
3. **Scope:** Goals of the project were to drive traffic on client's site. After this goal is achieved, the other goal is to engage and retain that traffic on the web site so it can increase traffic conversion ratio. Traffic conversion ratio is no. of customers going for business with the clients actually. The



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third goal was to predict page views and sessions such that we can improvise on it based on some predictive modelling. Frequent update to client was required. Ultimate costs of the project were around \$2700 per month. Three dedicated resources were assigned for this project.

4. **Role:** As a BA and SEO Web Analyst I worked from gathering requirements, managing the team and the client; to submit sitemap to google for indexing purpose; performing competitive analysis and keyword analysis on SE tool, back links tracing ; developing contents for Directory Submission, Classified Submission, Blog Commenting, Press Release, Guest Blogging, Blog Creation, Search Engine Submission and Forum Posting; learning google analytics; connecting the site with google analytics account and getting insights from daily reports; generating weekly SEO reports; asking team for technical corrections related to site; weighting various ranking factors; performing analytics and data visualizations on the web data in R.

5. **Technologies:** SEO enabling technologies are content, website structure consisting of title tags, meta tags, h1 and h2 tags, alt tags, canonical tags, crawlable link structures, indexable content, etc. Title tags should be of length up to 70 characters. After 70 characters' search engine results page shows cut off the title and replace with ellipsis. Meta tags are divided in to two categories. First is description and second is keyword. Description length should be around 160 characters with relevant content of what the site is about. H1 and H2 are header tags help search engine in grasping main topic of the page. It's inclusion results in better understanding of our site and thus helps in better ranking. Alt tags are used as search engines still are not able to read images, videos and other media. To make search engines understand media files, alternate tags are used for its description. Search engines determine what is on media by checking for alt text. If alt text is rich with good high quality description, then ranking goes up.

6. **Methodology:**



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Below are the methodology steps on SEO process following the above figure:

1. Research on main keywords using various tools like SE Ranking etc. Performing competitive analysis, searching for traffic stats on competitors' sites helps in finding keywords which are drive similar business for competitors.
2. Developing structure for keywords on each page. Submitting sitemap to google so that google can index it.
3. Optimizing each page for main keywords. It refers to onsite SEO and includes Content building.



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4. Build link to home page and main pages. This is done by Directory Submission, Classified Submission, Blog Commenting, Press Release, Guest Blogging, Blog Creation, Search Engine Submission, Forum Posting etc.
5. Search engines take time to update links and keywords.
6. Look into rankings and traffic to analyze results. Weighting various ranking factors, like Alexa ranking, total back links, unique back links etc. Signing for google webmaster tool with google analytics. An asynchronous code is generated which can be pasted in header of the website and then google can easily track and gives all the statistics.



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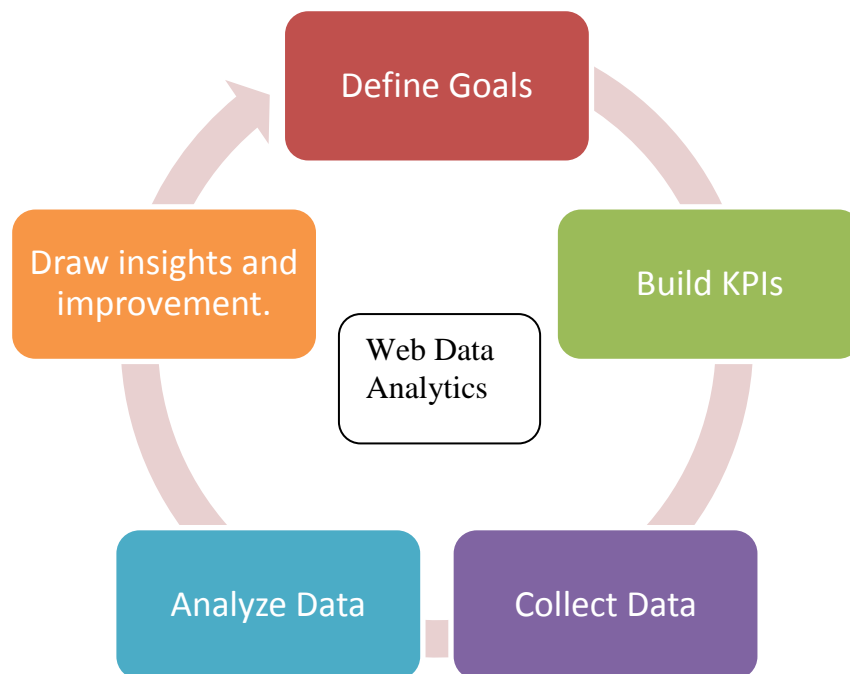
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Below are the methodology steps on Website analytics following the above figure:

1. Define goals: Each time a user completes one of the business goals, we call it conversion. To track these conversions, we set goals in google analytics.
2. Build key performance indicators: Some KPIs are Bounce rate, %Exit, Visits/Sessions, Page views, Average time on page, Unique visitors average time on site, Landing pages etc.



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3. Collect Data: The tracking code used on site tracks each user interaction that occurs on Star Car Removal site. A hit is sent with parameters of useful information
4. Analyze Data: Data collected by Google analytics is analyzed in the form of different reports like audience, acquisition and behavior report.
5. Draw insights and improvements: This step is explained in detail at later stage in this document.

R Web Analytics

Task 1: Enabling Google Analytics API

1. Configured google API settings by going [google developers console](#).
2. Made a new project there and named it "Export GA Data".
3. Searched "Application API" and enabled it.
4. Created credentials and noted client id and client secret.

Task 2: Downloading a package for accessing the API

5. Package rga is used for providing interface to the Google analytics API.
6. Authentication is done using rga_open command. This will check if the instance is already created, and if it is, it'll prepare the token. If the instance is not created, it'll create the instance, and redirect the client to a browser for authentication with Google. It supports



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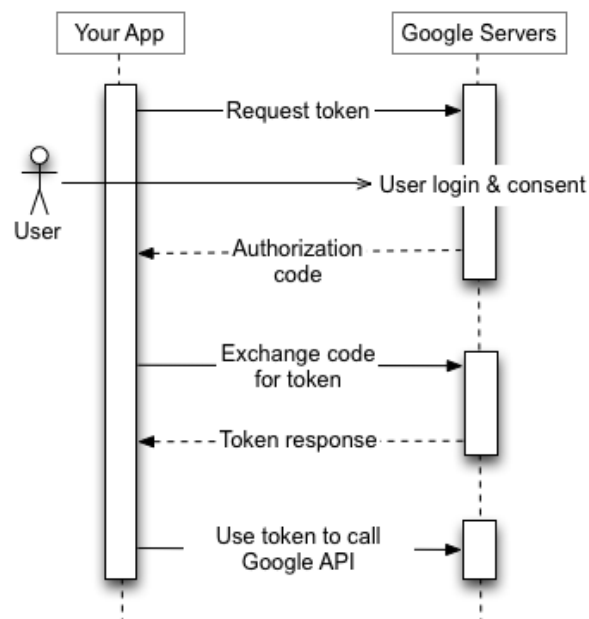
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authentication and authorization via protocol [OAuth 2.0 authorization](#) . The protocol works as follows:



Step 1: `rga.open(instance = "ga")`

Step 2: Above command will open google analytics login window, put login id and password.

Step 3: An authorization code gets generated.

Step 4: Copy the code in R application.

Step 5: If the code generated is same as the code copied in the application console then step 1 will run without error.

Step 6: Now desired view can be chosen and `ga$getData(id)` can be called.



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7. RGA package helped us in querying and extracting data from GA to R environment.
8. <https://developers.google.com/analytics/devguides/reporting/core/dimsmets> is the site for getting core dimensions and metrics name for querying in R.

9. Following are the basic libraries and code used for authentication and querying:

```
install.packages("devtools")
library(devtools)
install_github("skardhamar/rga")
library(rga)
rga.open(instance = "ga")
id<-viewid is passed

# get GA report data
ga_data <- get_ga(id, start.date = first.date, end.date = "today",
  metrics = "ga:users,ga:sessions",
  dimensions = "ga:userGender,ga:userAgeBracket",
  sort="", filters="", segment="", max="", )
```

As rga package is still in development mode, it is not yet on CRAN. Library devtools is used for downloading package from github, which is a web based repository of codes. API response is directly converted in R as a data frame. To get results from API `ga$getdata()` function is used.



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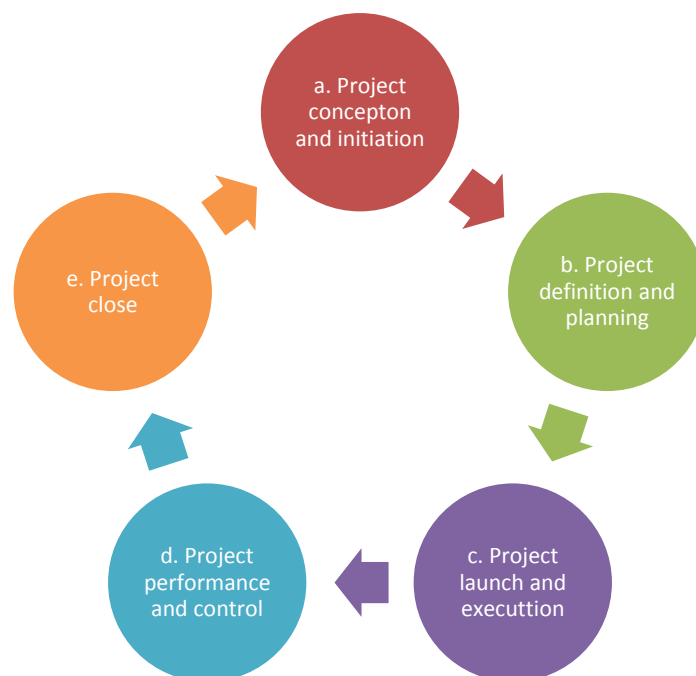
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Chapter 2: Analysis of the Work Done

2.1 Project Management Life Cycle:

The project was analyzed under 5 different process groups during the entire project management lifecycle as concluded from studies and external readings that is done for the project.





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2.1.1. Project Conception and initiation: Project goals and objectives are analyzed and made clear to avoid any confusions. Project charter was constructed, Project documents are signed up and stakeholders are identified. Project charter is made out of inputs provided which are project statement of work, business case and other agreements. Manager's judgement helped in finalizing the charter.

The initiating phase defines the nature and scope of the project. It is the most important part of any project, as it defines the beginning. If this stage is not performed well, it is unlikely that the project will be successful in meeting the business' needs. Here understating the business environment is the most important part.

Business Case given:

Client's business of cash for an old/junk/unwanted car is in western Australia. Competitor's site for similar business has got more traffic and our client is new in the e-business. What can be done to drive traffic on client's site which can generate their revenue as well.

Some of the objectives and goals identified for the project were:

Increase traffic on client's site.

Retain traffic on client's site.

Perform better visualizations and forecasting.

Stakeholders identified:

Hawkscode, as the company has undertaken the project,

The client, as its their project.

Users visiting the site.

Sponsors from the client side.



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Project Documents:

Project Charter, also known as project definition document. It was created by project manager along with our sponsor and signed off by the CEO himself.

SEO Agreement, which includes start date, services to be given, access to be given from client's side, some terms and conditions and signature of both – Hawkscode and client.

- 2.1.2. Project Definition and Planning:** Work breakdown structure was made and analyzed. Risks were forecasted to minimize their impact, Schedule was planned, activities were sequenced, resources were estimated and identified for the purpose, activities were divided, cost was identified, quality and communication was planned, stakeholder management plan was made.

Reaching right people at right time with desired proposal is very crucial for small companies to grow fast. The main purpose of planning phase is to plan time, cost and resources adequately to estimate the needed work and to effectively manage risk during project execution.



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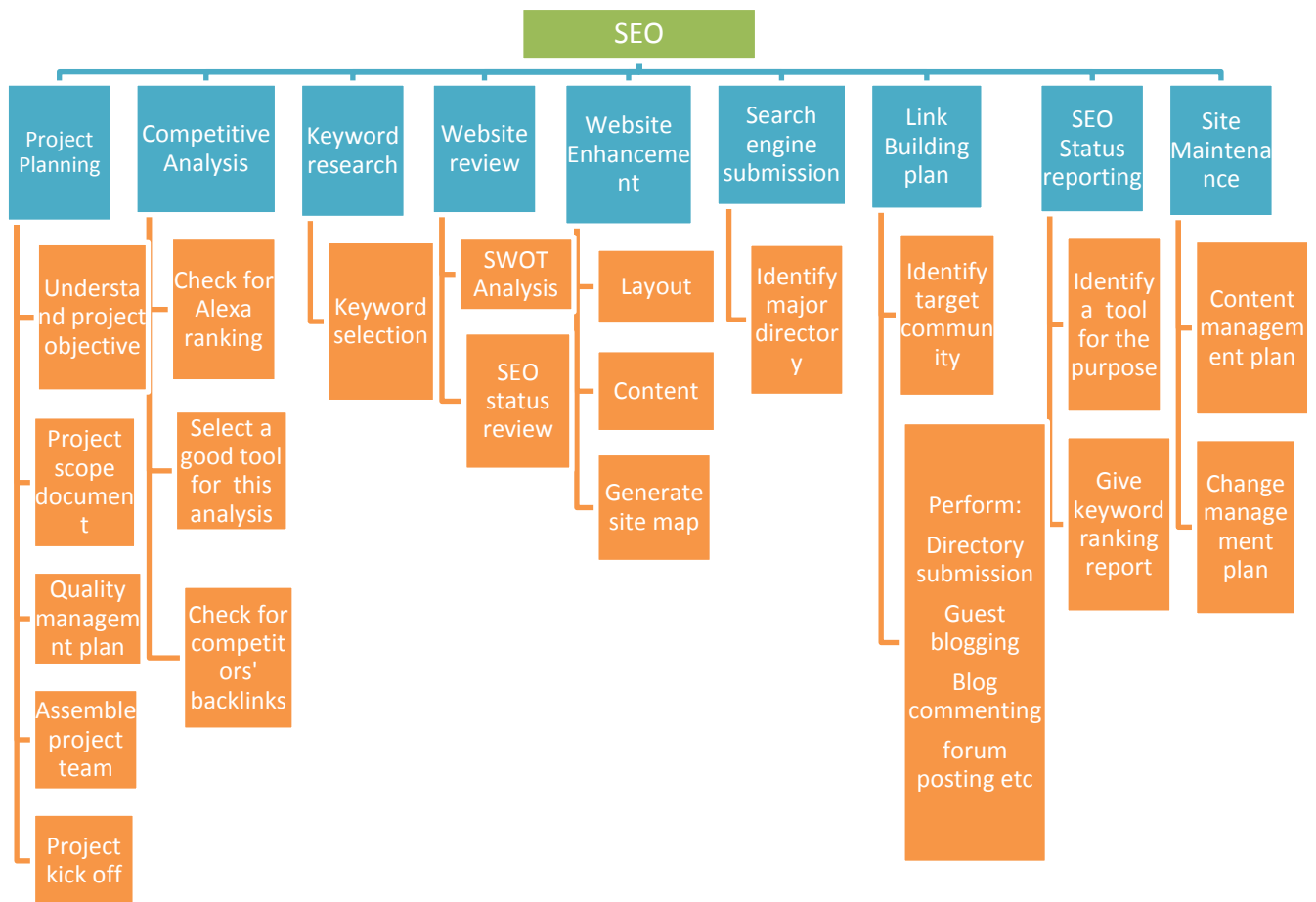
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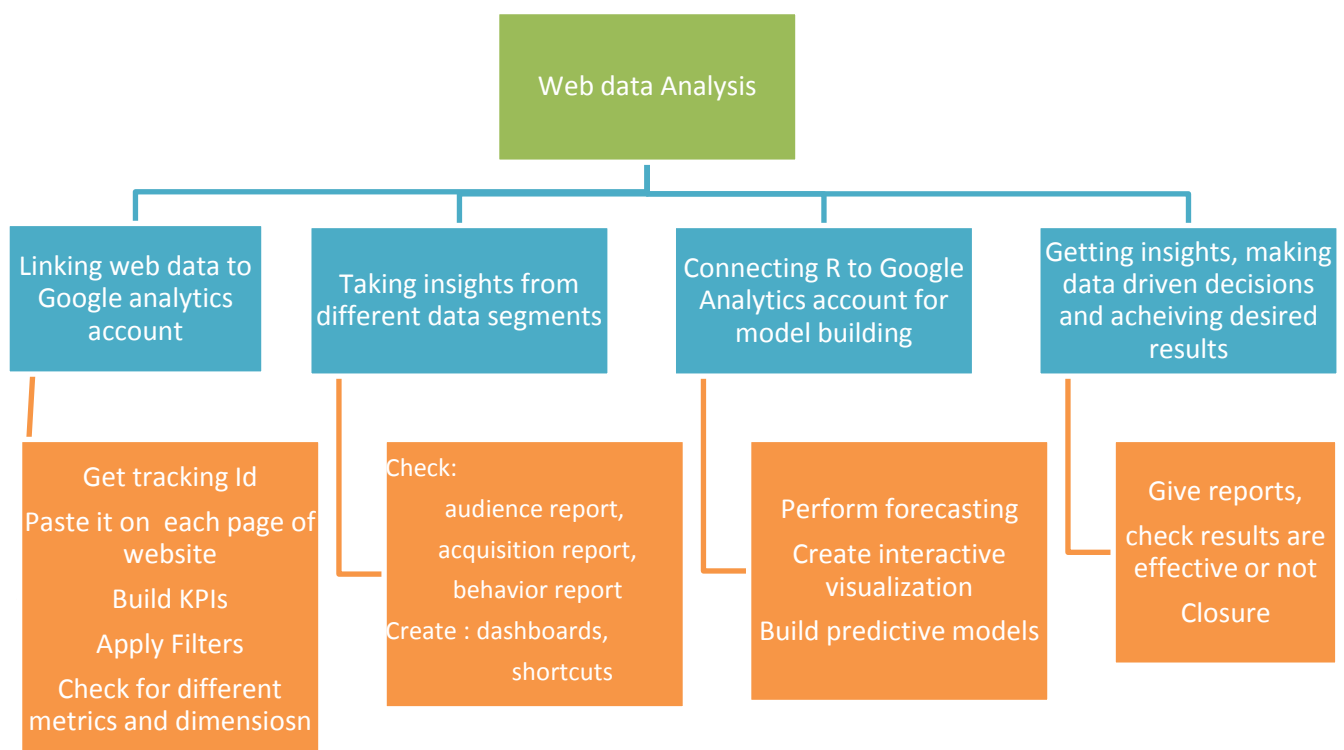
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2.1.3. Project Execution: Key performance indicators which are identified and analyzed on how they are going to impact the business. They are aligned with the goals created earlier. Quality of work checked by different SEO tools. Weekly reports generated for status tracking. Forecasted changes that needs to be implemented. Following work is undertaken in this step:

Web Analytics: To get the relationship between our site and its users, we looked for web analytics. Steps: Goals decided are created on GA: Click on contact us section. Thus we have set a destination goal from a set of destination, duration, pages/session and event goals.

Key Performance indicators were identified: Bounce Rate, Users, Sessions, Page Views, Entry/Exit Pages are the selected KPIs for our site. KPIs help are measurable and brings our client a step closer in achieving the goal as they check for the strategies being implemented.

Segments of data is discovered: Audience, Acquisition and behavior are three inbuilt segments in google analytics.

Below is the analysis of the work done on google analytics tool for the star car removal website data for an early week (Client has the access to change settings of Google Analytics. Below is my input)

Filter can be applied to remove unwanted traffic coming from US, Germany, Japan etc. for analysis. Advertising and reporting features can be set to 'ON' to view demographics reports.



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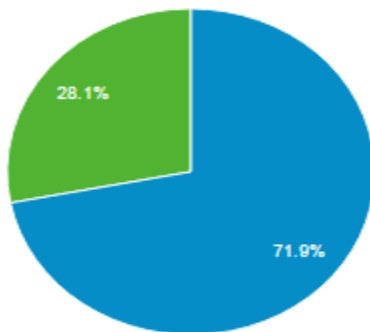
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Audience Report

■ New Visitor ■ Returning Visitor



- Very less users are returning on site.
- Display, email, paid search and other channels we have not used yet which competitors are using along with direct, social, referral and organic search.
- Linux and windows are mostly used operating system for the purpose. It means our site should run smooth on these two target OS.
- Most people are using chrome followed by safari and Firefox. Our site should run smooth on these browsers to avoid loss.
- Main task is to work on avoiding Bounce rate which is around 91% which is quiet high. Remarketing feature can be included to reduce it (Again no admin access so I can't do it).

...	May 18	May 19	May 20	May 21	May 22	May 23		
	1 Day Active Users		7 Day Active Users		14 Day Active Users		30 Day Active Users	
All Users	38 % of Total: 100.00% (38)		288 % of Total: 100.00% (288)		501 % of Total: 100.00% (501)		738 % of Total: 100.00% (738)	
Bounced Sessions	38 % of Total: 100.00% (38)		270 % of Total: 93.75% (288)		467 % of Total: 93.21% (501)		694 % of Total: 94.04% (738)	



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- Active users report shows that users are increasing with time range which means every day traffic is there.

Acquisition Report

- Top channels are direct (directly putting URL), organic search (suggested by search engine like google), social and referral for bringing traffic on site.
- We can work on increasing organic traffic by better use of keywords or good ranking on search engine for better result with organic search as its bounce rate is low.
- Referral channel should also be targeted for marketing as its bounce rate is low.
- Main referrals are coming from m.facebook.com, piulatte.cz, lm.facebook.com, vwwatercooled.com
- AdWords account can be created and linked to google analytics for better picture of customer behavior which is currently absent. Also as more traffic is coming from Google, creating AdWords account will help in better targeting people.
- Home page, /car-wreckers/ and /cash-for-junk-cars/ are mostly landing pages. These can be made more engaging.
- Google funnel visualization should be enabled to know what are the steps a user is taking for goal conversion.

Behavior Report

- There is 100% bounce rate from home, contact us, about us, cash for 4wd perth, old car, truck and unwanted car removal used car buys Perth. These pages can be made more appealing with content modification to avoid bounce rate.
- Exit pages is mainly <http://starcarremovalwa.com.au/> so we can make it more interactive to avoid user exit from it directly.



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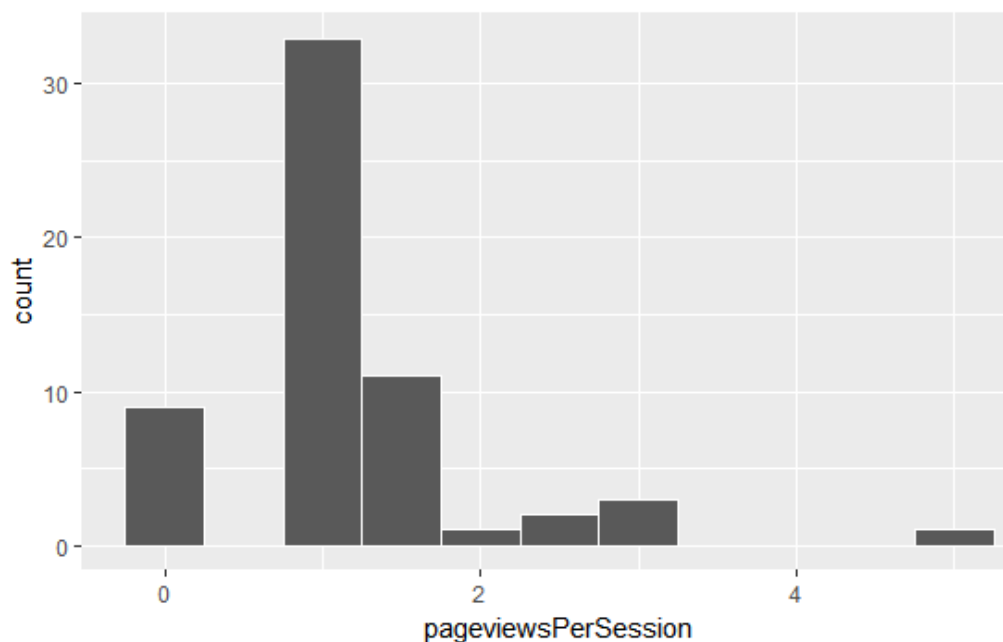
- Average page load time is around 15 seconds mainly because of <http://starcarrremovalwa.com.au/> so it can be reduced further as GA suggests there is 23% room for improvement in the site.

Web Analysis on R

Below are some web data visualizations using ggplot2 along with their codings.

- Graph 1: Below graph shows that more people visit a single page and leave. Thus internal linking in site can help in preventing this.

```
ggplot(gaData2, aes(pageviewsPerSession)) + geom_histogram(binwidth = .5)
```





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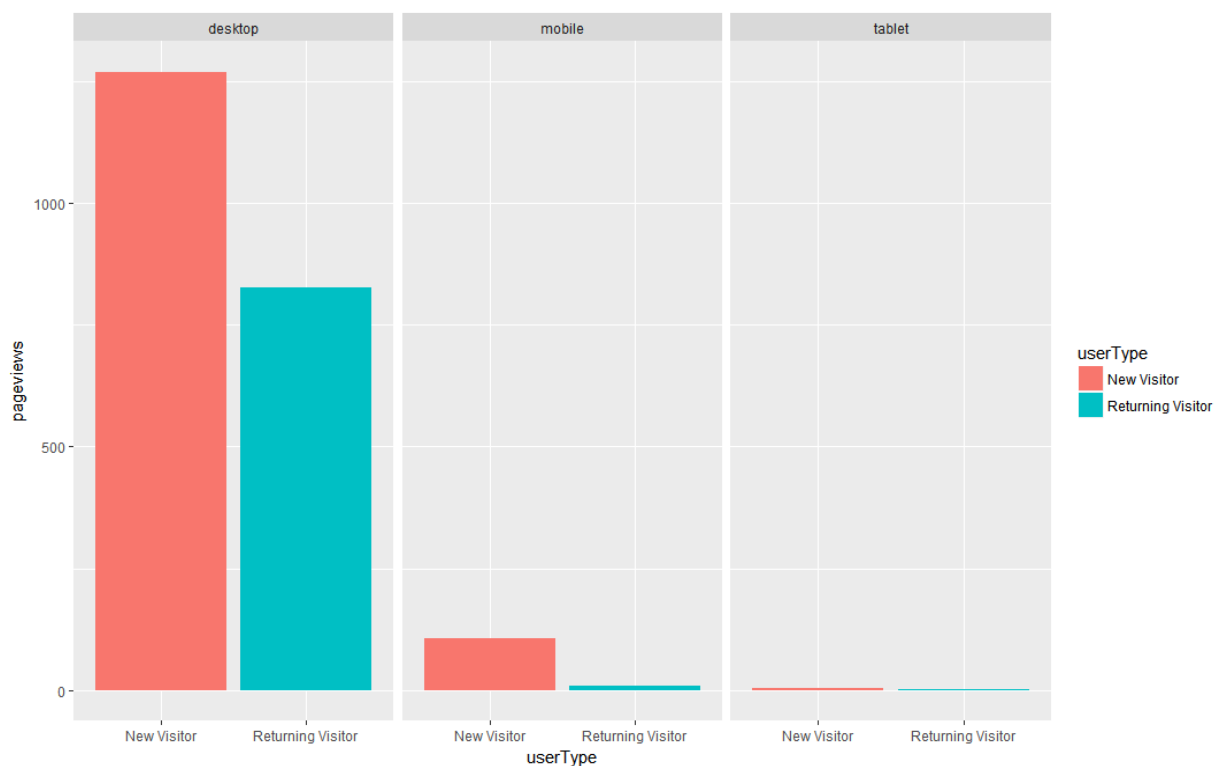
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Graph 2: Below graph shows new users versus returning users viewing pages on different device type.

It can be seen that more users are using desktop device to visit the e-business, followed by mobile and tablet device. New visitors are more as compared to returning visitor.

```
ggplot(gaData2,aes(x=userType,y=pageviews, fill= userType)) +  
geom_bar(stat="identity") +  
facet_wrap(~deviceCategory)
```





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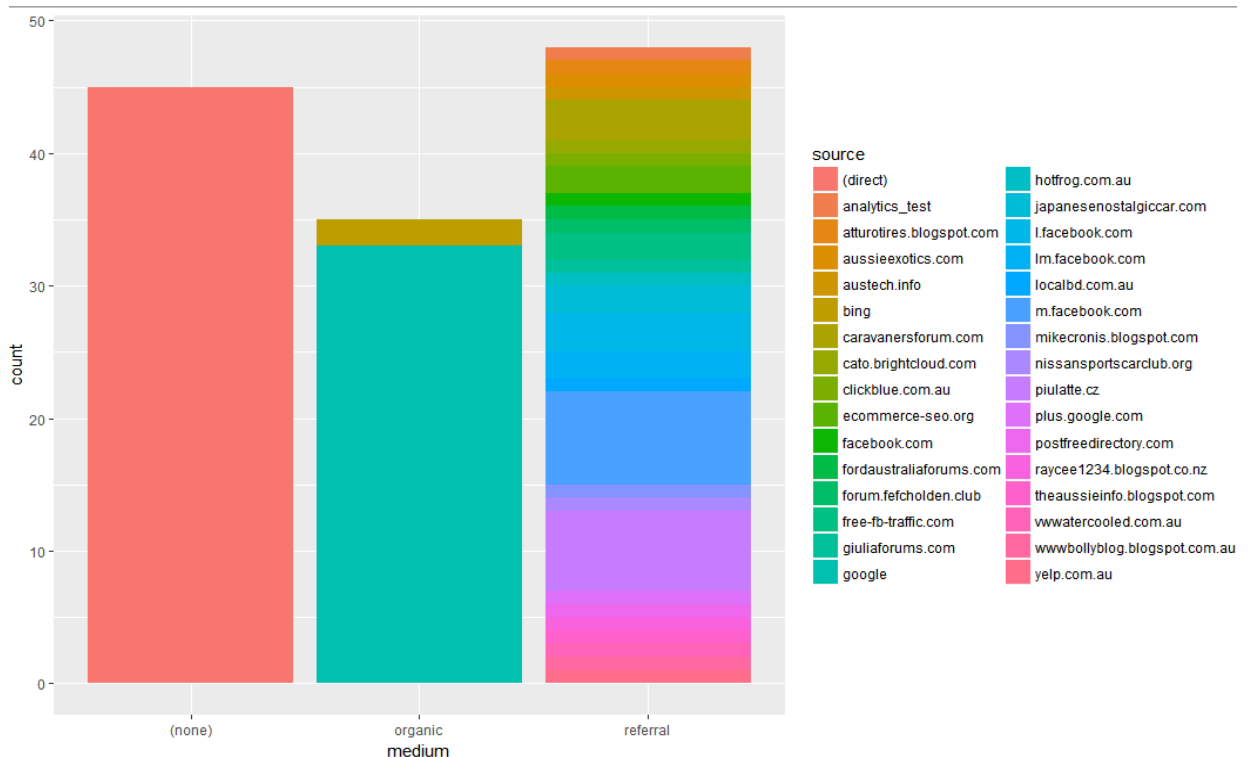
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Graph 3: Below graph shows medium wise sources. When the medium is none the source is direct. When the medium organic, source is google and bing and when the medium is referral, traffic from all the sources is there. So steps should be taken to optimize search results at bing as well. Referral sites can be targeted for marketing.

```
> ggplot(gaData2,  
+ aes(x = factor(""), fill = medium) ) +  
+ geom_bar() +  
+ coord_polar(theta = "y") +  
+ scale_x_discrete("")
```





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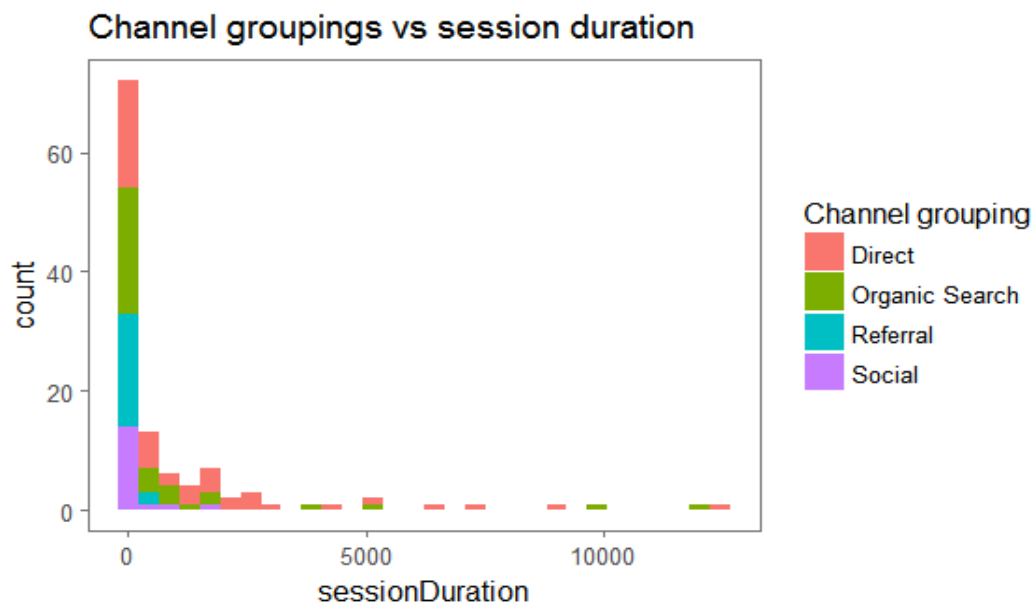
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Graph 4: The below graph shows session duration is more for direct and organic search. Although the stats are not good, we got an idea that we need to improve it by knowing factors affecting session duration.

```
> ggplot(gaData2, aes(sessionDuration, fill = factor(channelGrouping))) +  
+   geom_histogram(bins=30) +  
+   theme_few() +  
+   xlab("sessionDuration") +  
+   scale_fill_discrete(name = "Channel grouping") +  
+   ggtitle("Channel groupings vs session duration")
```





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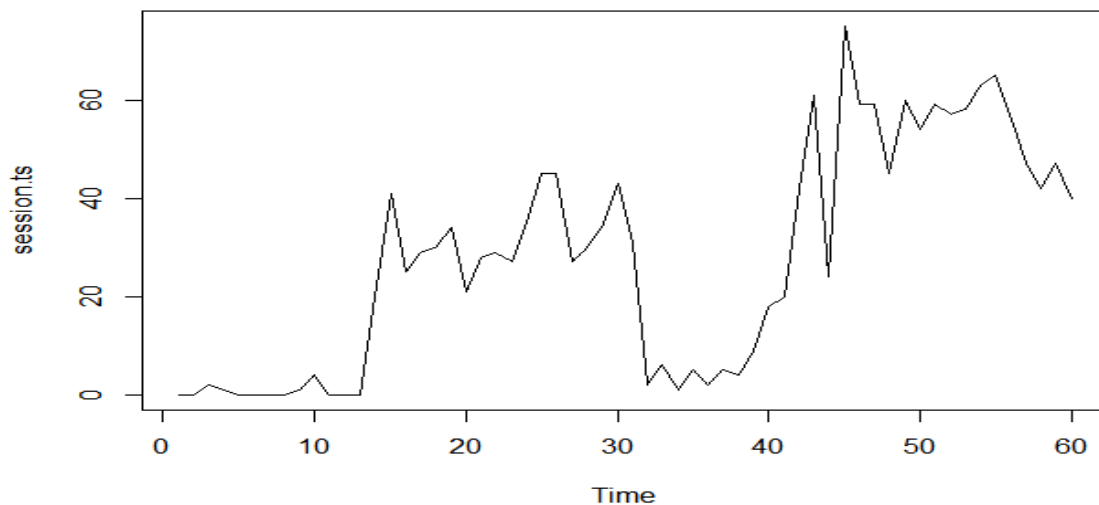
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Forecasting sessions: The forecasting is done using Exponential smoothing where method used is ets(). Exponential smoothing is applied as short term forecasting of sessions is to be done. ETS stands for error, trend and seasonality. Our model generated is ets(A,N,N) from the automatic ETS framework where, A stands for additive error with no trend and no seasonality.

```
>session.ts<- ts(gaData$sessions, start= 1 ,frequency=30)
```

```
> plot(session.ts)
```



The below graph shows that we have seasonality and trend in our data. Trend is an upward trend while seasonality decomposition shows that first 10 days of each cycle, sessions are low and in next 20 days sessions are high. To have good no. of sessions on first 10 days as well, we can ask the team to put extra effort in creating backlinks and doing social media marketing that can result in upward rise rather than usual decline.



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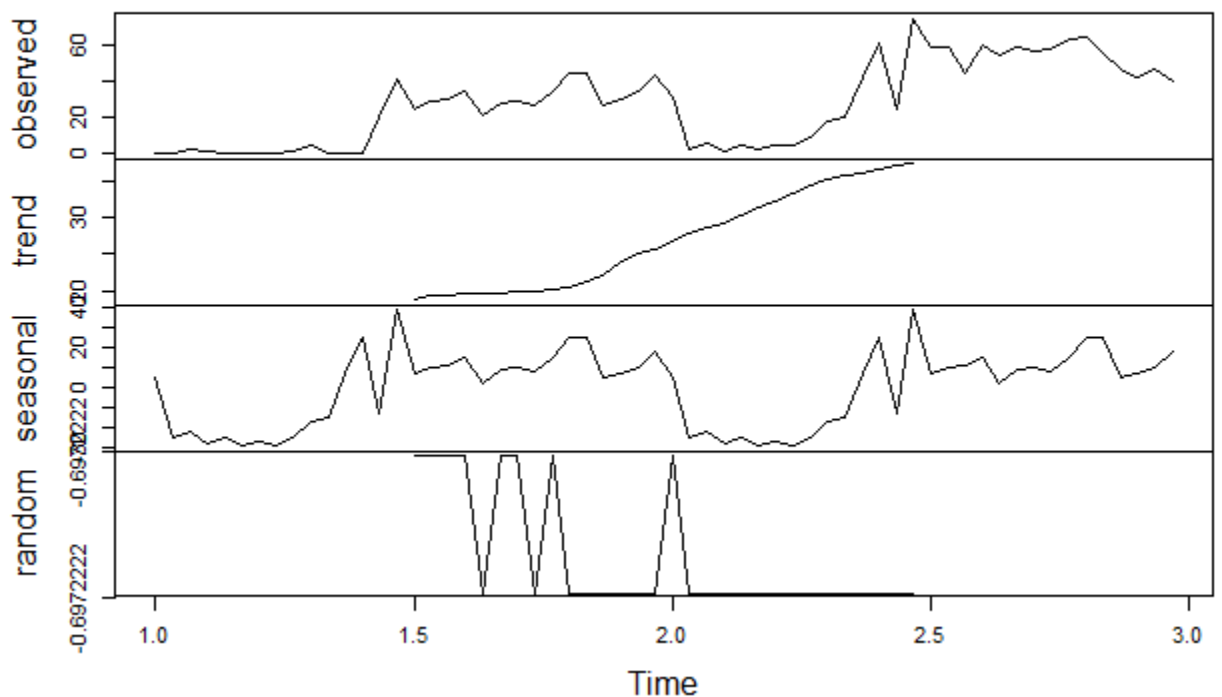
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As our data is additive in nature, it is of following nature:

Sessions data= seasonal+ trend+ cycle+ random noise

Decomposition of additive time series



```
>plot.ts(fit$residuals)
```

In order to validate our model, we have checked residuals plot for the model. Residual is the difference between an observed value and its forecast. As our residual plot has mean zero, it shows our forecast is not biased.



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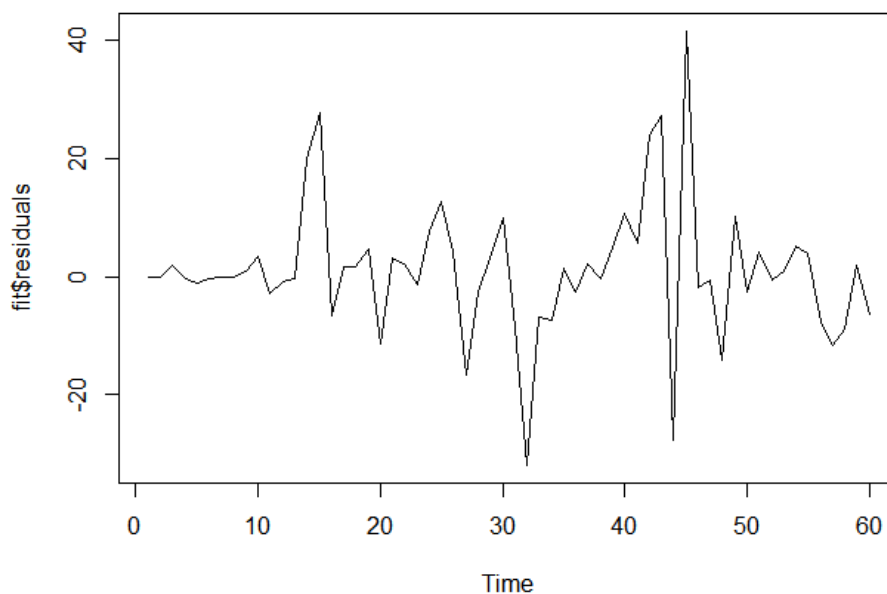
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```
>fit<-HoltWinters(ts_sessions)
```

Holt-Winters exponential smoothing with trend and additive seasonal component.

Smoothing parameters:

alpha: 0.4230908

beta: 0.3140138

gamma: 0.1

As we see here that alpha is close to 0, that is 0.42, it means more far off observations are deciding predictions.

As we see here that beta is close to 0, that is 0.31, it means more far off observations are deciding trend.

As we see here that gamma is close to 0, that is 0.1, it means more far off observations are deciding seasonality.



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Point	Forecast	Lo 80	Hi 80	Lo 95	Hi 95
61	42.1541	27.438666	56.86953	19.6487858	64.65941
62	42.1541	24.522886	59.78531	15.1894855	69.11871
63	42.1541	22.025131	62.28307	11.3694983	72.9387
64	42.1541	19.804802	64.5034	7.9737992	76.3344
65	42.1541	17.785948	66.52225	4.8862287	79.42197
66	42.1541	15.922011	68.38619	2.0355819	82.27262
67	42.1541	14.182003	70.12619	-0.6255302	84.93373
68	42.1541	12.544069	71.76413	-3.1305334	87.43873
69	42.1541	10.99211	73.31609	-5.5040502	89.81225
70	42.1541	9.513859	74.79434	-7.7648397	92.07304

```
>session_forecast<-forecast(fit,10)
```

```
> session_forecast
```

The above table shows forecast along with 80% and 95% confidence levels. The lower and the upper prediction limits produce a prediction interval for each forecast. The forecast says sessions will be negative. To increase this, we can target more towards marketing through classified ads so people become aware of it and visit our site. Still the nos. are not so good for sessions per day. We need to optimize it changing and modifying other parameters that may target more users and ultimately creating more sessions.

Predicted sessions show an average of 42 sessions, which can be increased by remarketing, making site designs more tidy and appealing, using social media marketing, adding user stories, target abandoning users, creating internal links, adding high quality images etc. As the no. of users returning on site are less, it can also be improved from above steps.



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accuracy(sessions_forecast)

	ME	RMSE	MAE	MPE	MAPE	MASE	ACF1
Training set	-1.017276	6.320433	4.339386	-8.637566	31.58797	0.2279888	0.08762007

Parameters to be considered:

MAE stands for Mean Absolute Error. It is the deviation of forecasted values from original ones. Lesser the no. the better it is as it suggests less deviation. In our case, it is 4.33 which is less.

RMSE is root mean square error. It is also less which is a positive result.

MAPE is mean absolute percentage error. In our case it is 31.58797 which means forecast is off by around 32%

MPE is mean percentage error. It tells the average percentage of error occurred while forecasting. It is quite less which is a good result.

Model Building on bounce rate:

Objective: Client's requirement was to check for bounce rate.

Implementation: Correlation was found among:
"bounceRate", "serverResponseTime", "serverConnectionTime", "redirectionTime", "pageDownloadTime",
"avgDomainLookupTime", "avgPageLoadTime".

Regression model was built as all the parameters were numeric in nature and we wanted to find changes in bounce rate because of parameters like server Response time, server Connection time, redirection Time etc.

Results: Results were bad but we got an idea on factors for bounce rate and other related parameters. We have explained the linear regression relationship model to the client. As the SEO takes time to show good results, our numbers were bad for the model. This was just a test performed for having an understanding on model building and future predictions. Model accuracy will get better with the better traffic resulted from SEO over time.

Below is the work done:



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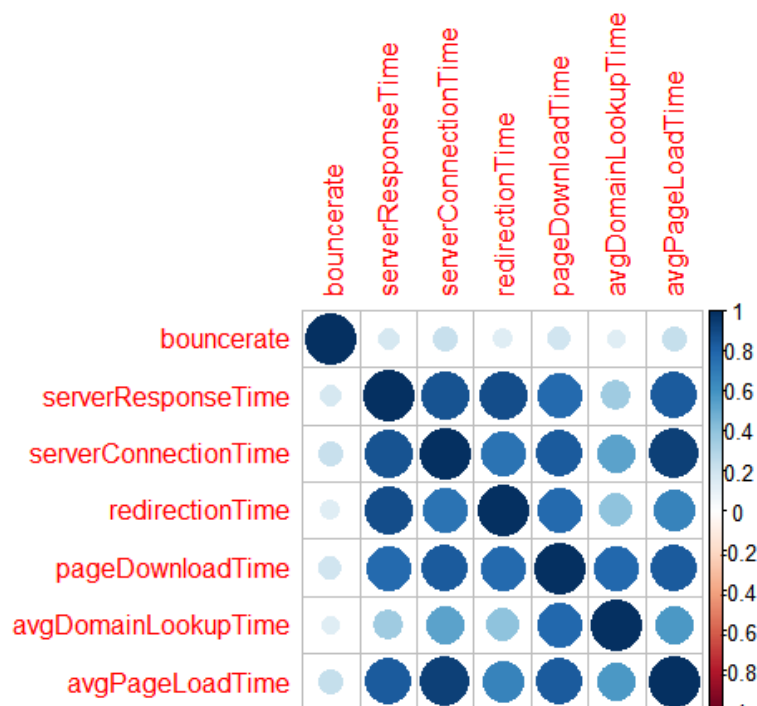
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Data visualization using corrplot library: As per below plot, linear correlation of bounce rate with other variables is not good. But effect of other variables on bounce rate can only be confirmed by model building.

We can also get from the graph that other variables are quite related to each other and have good stats for the site.

Cordata<-

```
cor(gaData2[c("bouncerate", "serverResponseTime", "serverConnectionTime", "redirectionTime", "pageDownloadTime", "avgDomainLookupTime", "avgPageLoadTime"]))  
corrplot(cordata)
```





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From the correlation graph we see that server response time, server connection time, redirection time, page download time, average domain lookup time and average page load time are highly correlated which is a desired result.

Although the above graph shows that there is not much collinearity between bounce rate and rest other metrics considered, but how much bounce rate is affected by other parameters can be found using model building.

```
model1<- lm(formula = bounceRate ~ serverResponseTime+serverConnectionTime+redirectionTime  
+pageDownloadTime+avgDomainLookupTime+avgPageLoadTime, data=gaData2)
```

Multiple R-squared: 0.3579, Adjusted R-squared: 0.30

$$\text{bounceRate} = 65.222724 + (-0.002386)\text{serverResponseTime} + (0.026427)\text{serverConnectionTime} + (-0.030398)\text{redirectionTime} + (0.004973)\text{pageDownloadTime} + (0.500740)\text{avgDomainLookupTime} + (1.676737)\text{avgPageLoadTime}$$

From the above equation we see that, avgPageLoadTime is more weighted as compared to other metrics in deciding bounce rate. Thus we can conclude that our rest parameters are good enough and we need to check for average page load time.

Suggestions:

Average page load time could be checked by decreasing a page weight by optimizing content and image size, loading images via external css, minimizing white space and comments. Session duration can be increased to check for bounce rate as well.



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2.1.4. Project performance and Control: Analysis was done on how goals and objectives were aligning with the project. Cost and effort of the project were tracked. Performance of team is evaluated. It is a continuous process and the project was monitored by the manager in the form of reports and presentations given to them. Weekly report on keywords and work done was reported on regular basis.

Below are the snapshots of the same report.



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SEO Report for <http://www.starcarremovalwa.com.au>

84 / 100

SEO SCORE

40 / 51

PASSED CHECKS

7 / 51

FAILED CHECKS

4 / 51

WARNINGS

COMMON SEO ISSUES

Meta Title	<p>✓ The meta title of your page has a length of 70 characters. Most search engines will truncate meta titles to 70 characters.</p> <p>→ Cash for Cars Perth, Car Wreckers - Star Car Removal WA Car Wreckers</p>
Meta Description	<p>✓ The meta description of your page has a length of 141 characters. Most search engines will truncate meta descriptions to 160 characters.</p> <p>→ We pay good cash for your unwanted or wrecked cars, truck, 4WD, and other with free car removal Perth and Car wreckers services in Perth, WA.</p>
Google Search Results Preview	<p>① Cash for Cars Perth, Car Wreckers - Star Car Removal WA Car http://starcarremovalwa.com.au/ We pay good cash for your unwanted or wrecked cars, truck, 4WD, and other with free car removal Perth and Car wreckers services in Perth, WA.</p>
Most Common Keywords Test	<p>① There is likely no optimal keyword density (search engine algorithms have evolved beyond keyword density metrics as a significant ranking factor). It can be useful, however, to note which keywords appear most often on your page and if they reflect the intended topic of your page. More importantly, the keywords on your page should appear within natural sounding and grammatically correct copy.</p> <p>→ cash - 44 times → perth - 36 times → cars - 29 times → free - 18 times → removal - 15 times</p>
Keyword Usage	<p>① Congratulations! You are using your keywords in your meta-tags, which help search engines to properly identify the topic of your page.</p>



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Keywords Cloud	<p>① address areas carousel cars cash close communities community contact contacting copyright customers damaged demo details dollars dsgdsg eastern easy email enquire ensure facebook follow ford form free getting google hand help holden honda hyundai image inspection instant instantly intouch junk maintained makes manufacturers mazda message mitsubishi mobile model models need needing nissan northern offer options owners parts perth phone plugin premise properly quote reach regions removal removals request required reserved reused review rights scrap second selling send service services sitemap sitting southern spare star starcarremovalwa@gmail.com suburbs toyota trucks twitter unwanted usable used vehicle vehicles western wordpress wrecked wreckers write youtube</p>
Related Keywords	<p>① This URL is currently ranked in the top 20 organic Google listings for the search terms below:</p> <ul style="list-style-type: none">→ free cars perth→ car removal perth→ perth car removal→ car removals perth→ carwreckers
Competitor Domains	<p>① Some of the most relevant competitors for your domain are listed below:</p> <ul style="list-style-type: none">→ fremantlewreckers.net.au→ gumtree.com.au→ japaneseimportspares.com.au→ japparts.com.au→ jtwautoparts.com.au
<h1> Headings Status	<p>✓ Your page contains H1 headings. Their contents are listed below:</p> <ul style="list-style-type: none">→ cash for cars perth→ Free Car Removal Perth @ Star Car Removal Perth→ TOP Cash For Cars Perth @ Star Car Removal Perth→ Car Wreckers Perth @ Star Car Removal Perth→ Contact Us



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<h2> Headings Status	✓ Your page contains H2 headings. Their contents are listed below: → car wreckers
Robots.txt Test	✓ Congratulations! Your site uses a "robots.txt" file: http://starcarrremovalwa.com.au/robots.txt
Sitemap Test	✓ Congratulations! We've found 1 sitemap file for your website: → http://starcarrremovalwa.com.au/sitemap.xml
Broken Links Test	✓ Congratulations! We have checked 31 links on this web page and none of them are broken.

All the warnings and errors were removed, like 22 inline CSS styles were removed, image alt warnings were fixed, site load time was reduced which was earlier around 13.786 seconds.

2.1.5 Project Closure: The work done in this project was reported to mentor and management in a report. The work was presented to them with the visualizations and dashboards as below.



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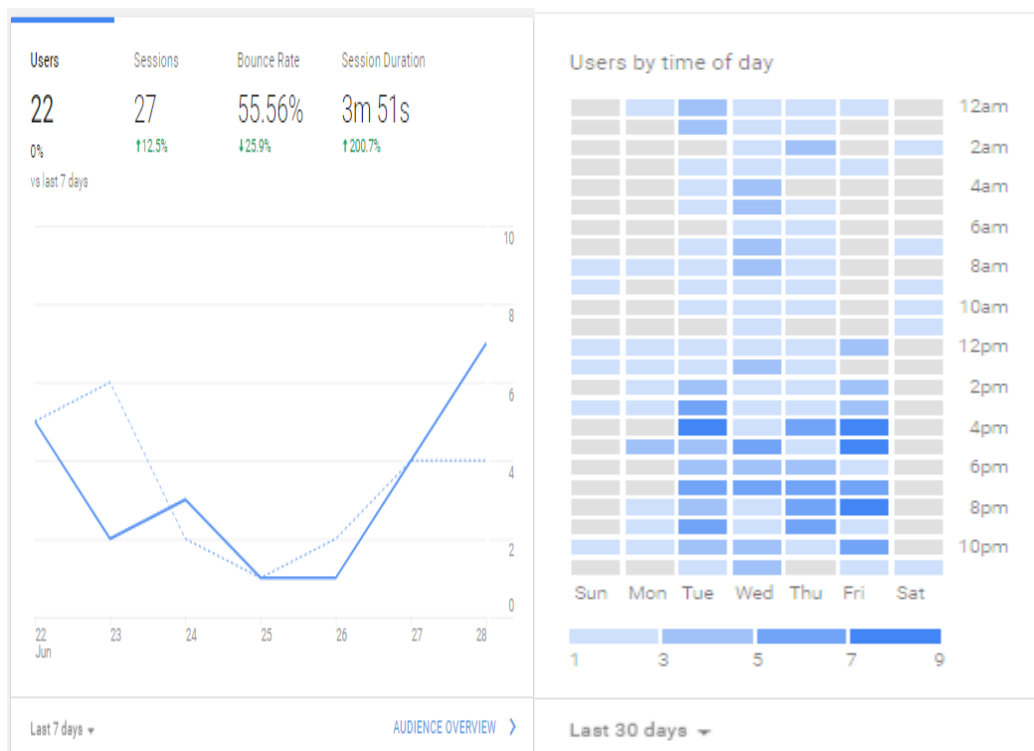
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Thus we see that bounce rate has decreased 25.9% within last 7 days, session duration has increased by 200.7%, which was earlier around 1 minute when we started the project. Users remain same while sessions have also increased by 12.5% giving a positive overall report.

In the other graph above we see that people are more active from 4 pm to 9 pm, from Tuesday to Friday. So our support team should be in place at this peak hours and days.

Below two graphs are similar and self-explanatory.



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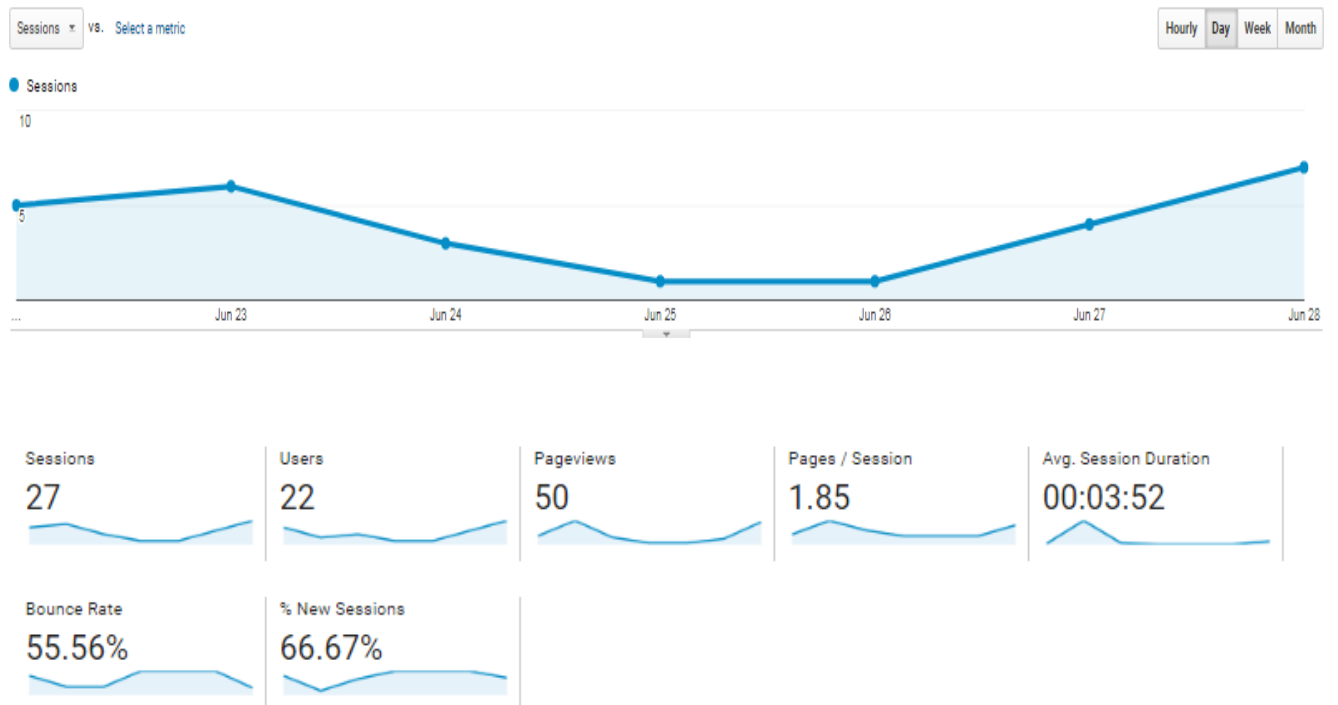
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The above graph gives a flow of links that users follow to reach 'contact us' page. The links which users follow needs to be very interactive for driving him to the next page. All the above mentioned pages should be checked periodically for maintenance purpose.

Thus accepted results were given which aligned with the project management plan. Higher management judgement was taken. Meetings were held where discussion on the project and its closure were conducted. Analytical techniques were used to weigh the results. SEO ranking tools were used for this propose.



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Chapter 3:

Learning Experiences On Business/Technology

My internship at HawksCode Software Pvt. Ltd. has been a great learning experience in terms of personal as well as professional growth. One of the most exciting aspects of working at a startup is the varied diversity of experiences you will gain. And this internship project has helped me to achieve in both technical and management area.

The exposure that I got while working at the company has been tremendous. I got a chance to work directly with company's higher management people to make a substantial impact on the future of the business.

The key learning's of the various projects could be briefed as:

1. Understanding of what a Business Analyst's role and work undertaken.
2. Learning on how to bid for projects and get clients.
3. Learning on creating proposals which meet clients' requirements.
4. Strategic implementation of a plan and importance of effective interaction.
5. Learning on what is search engine optimization.
6. Learning on various tools involved for search engine optimization.
7. Learning on errors given by SE tool and how to overcome those.
8. Learning on increasing traffic on site by website analytics.
9. Learning on Google analytics in depth.
10. Learning on model building on web site data.



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3.1 Learning as a Business Analyst Intern:

For a given business scenario, I learnt below points which should always be kept in mind for implementing a project:

1. Identify the business need with deeper appreciation of the requirement.
2. In the very first steps start engaging with the stakeholders in order to gather perspective and build consensus.
3. If requirement has some data analysis involved in it then make a data collection plan such that it considers specific data sources with different types of data like structured, unstructured, semi structured being associated with it.
4. Make a thorough analysis plan, that may include quantitative as well as qualitative data analysis.
5. Include visualizations/graphs/diagrams when presenting details to clients with specific technology approaches.
6. Link insights drawn with operational and financial metrics. Along with it consider future challenges, past outcomes and further business with client.
7. Make recommendations which are actionable and includes key performance indicators. Tie recommendations with long term objectives.



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3.2 Learnings from the Project:

1. **Alexa ranking** is being checked for competitor's analysis. Alexa is a subsidiary of Amazon, which makes visits on websites public. The algorithm considers traffic from users who have Alexa tool bar installed. The smaller the ranking no., the better it is. Ranking under 100000 is considered good, that means a heavy traffic on website. To get Alexa ranking of our site, we need to install Quick SEO tool as a plugin in browser to analyze page rank, backlinks, Alexa rank etc. The lower the page rank no. in the tool, the better it is. Along with displaying us this information, the tool bar also sends data to Alexa server with IP address and page being visited. Thus server keeps updating the data. The drawback of this is it counts Alexa toolbar installed traffic only.

2. **Directory submission:** It is listing of web site on business directories based on relevance of directory. Page Authority(PA) and domain authority(DA) are two parameters considered before directory submission so as to avoid low quality directory. PA, is for a single page, and DA, is for entire domain, subdomain; are the scores developed by Moz which tells how well a website would be ranked on Search engine results page (SERP). The scores are calculated on a 100-point logarithmic scale. <https://moz.com/researchtools/ose/> is the online tool checker for PA and DA. More the scores, the better it is for web crawler to trace. After scores are checked you need to submit your business details and confirm via an email for listings. Its types are- free and paid.

3. **Blog Commenting:** Commenting on blogs of similar type will create more interactions and helps in making the site viral. Relevant blogs should be chosen in order to make blog commenting effective. Example of commenting a link in a blog: Get cash for an old, junk and unwanted cars. Visit : Car wreckers Perth. Wordpress, Blogger, Typepad are common blogging websites.



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4. **Forum Posting:** Forums are website where people can discuss on a topic. They just have to register themselves on forum website and can put up a topic for discussion called as thread or take part in an ongoing discussion. The communication on forums goes on publicly. So to publicize of our site we can post in forums making people aware of it thus boosting SEO.
5. **Classified submission:** It is posting of advertisement on classified sites to promote business. Free as well as paid services, both are available here. It makes a business more visible and thus helps in bringing inbound links. Classified ads should be formed that in least no. of words it tells more information. It is mainly done on sites with high page rank.
6. **Guest Posting:** It is posting on someone else's site to make interactions on similar kind of interest and topic. Not all the sites offer guest posting. Postings are checked by owner of sites before publishing to avoid spam if any.
7. **Google Analytics:** There are 3 process in a e business: acquisition, behavior and conversion.

Google analytics(GA)collects data from websites, mobile apps or any other internet connected platform and generates useful analytics from it. It just requires a java script tracking code to be added on each page, in the header section. A cookie is then dropped in user's browser for that website. GA divides user activity into sessions. A session starts when a user visits a page and ends after 30 minutes of inactivity. This is set as default which however can be changed in Google Analytics.

There are 3 levels in a GA account- Account, property and view. An account can have properties and a property can have multiple views. Each level inherits property from above level. Different tracking ids are there for different views and filters are there for view levels. There are only 25 views



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allowed per property till now. Goals can also be added at view levels. A maximum of 20 goals can be added per view.

Whenever a user interacts with a page, a lot of information is gathered and sent to analytics engine as packages called hits. A hit is a URL with useful information about user like his language, name, browser, analytics id, randomly generated user id etc. Hit can be of 3 types- page view hits, event hits and transaction hits. Once the data has been processed, results get stored in a database where it cannot be changed. So if require to include any details in our reports we need to configure in prior at accounts/property or view level. We shall not exclude any data which we may need in future.

There are mainly three types of reports generated- audience, acquisition and behavior by GA. Audience report help us in knowing and understanding our users. Acquisition report helps us in knowing from where traffic comes on to our site. Behavior report help us inn knowing what users do when they land on our site.

Every report in Google Analytics consists of dimensions and metrics where metrics are quantitative measurements whereas dimensions are categorical/ qualitative in nature. There are 3 scope level for each dimension and metric pair-user level, session level or hit level. Not any dimensions and metrics can be combined together. Their scope level should match.

Dashboards, custom reports and shortcuts can be created in GA using customization tab. A maximum of 12 reports can come up in its dashboard.

Medium and source are two terms from acquisition report. Medium tells from where traffic has arrived while source tells more details about medium. There are 5 types of medium classified:

- Organic, which is unpaid like google,



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- CPC, (cost per click) which is paid medium like Google Adwords text ads, where Adwords account is google advertising.
 - Referral, which is any other site than search engine.
 - Email, which means medium of email marketing
 - (none), which means directly by typing URL
8. **ggplot2:** It stands for grammar of graphics plot 2. As there is grammar of a language similarly there is grammar of graphics. Graphics or visualization is a combination of statistics and design. Essential elements of it are:
- Data: It is the dataset that is to be plotted,
 - Aesthetics: It is the scale onto which we map our data. It includes x axis, y axis, color, fill, size, labels etc.
 - Geometries: It is the visual element to be used for data. Ex: point, line, histogram, barplot etc.
 - Facets: It is grid of rows and columns. If a dimension is selected as a facet, it categorizes within a plot. It means sub setting of data with in a graph.
 - Statistics: It is statistical transformation of data. Ex: Applying binning, smoothing, descriptive statistics on data.
 - Coordinates: This element is to combine x and y axis for proper positioning of data on the plot. Some of its types are Cartesian, fixed, polar and limits.
 - Themes: It is the only non-data element of the plot which overrides all other elements mentioned above.
9. **ETS framework in R:** In exponential smoothing there are three different ways. Simple exponential smoothing with constant level and no trend and no seasonality, exponential smoothing with trend but no seasonality and exponential smoothing with trend and seasonality. To avoid confusion between them there is auto forecasting method using ets() of forecast package in R.



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10. Learnings on different R packages like devtools, rga, corrplot, forecast, ggplot2, caret, lubridate, etc.

3.3 Corporate ethics/behaviors:

1. Maintaining the confidentiality of data. I had access to the company repository which contained confidential data; it became very crucial for me to decide which data to share and which not to.
2. The company credentials and important information was shared which gave me authority to communicate on the behalf of the company and helped me in understanding the ethics and rules to be followed.
3. The corporate culture that the company follows is a new learning for me.



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Chapter 4: Conclusion

I was interned at Hawkscode where I climbed a decent learning ladder. Hawkscode being a startup has a small but dedicated workforce, which meets deadlines and manages quality with time. The company has supportive employees who believes in knowledge sharing value. Getting to work with such talents was an inspiration and motivation in itself as the people worked with great perseverance.

I got to work as a Business Analyst that has helped in imbibing business acumen from live projects like being calculative while dealing with projects be it in case of time, cost, quality, resources, stakeholders etc. I learnt importance of taking follow ups in closing a deal to putting proposals in the right way for getting clients. I learnt what it means when doing business at a global level as time zone, language and other barriers creep in which have to be managed at strategic level for smooth ties. I also learnt the effective way of presenting work to client and gaining trust in business is through visual presentations of the work done, considering numbers and future cases, as well, thus making clients count an edge above competitors present in the market.

As a SEO Analyst I have learnt how important it is to have a clear visibility of a site on famous search engines. Visibility drives traffic and make people more informed of a business. I learnt the ways to increase visibility and perform SEO site check to take decision on warnings and errors in it. I learnt on comparing competitors' site with ours to get a picture of backlinks and traffic sources, keywords and other technicality measures undertaken by both. I also got excessive learning on how on page SEO differs from off page SEO and how both are equally important for page rankings. I learnt different tools like XML sitemap generator, SEO tool box, SEO ranking tool etc. for the purpose.

As a Web Analyst I learnt how to perform website data analysis using Google Analytics and R. I got a deep understanding of Google analytics role in collecting data through tracking ID. I learnt how combination of various metrics and dimensions can give different segments of report. The importance



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of learning data and getting insights from numbers is understood. How extraction of web data through an API in R can help in extensive data modelling. I learnt how even small changes on website and factors impacting it, results in big difference may it be in form of page ranks, no. of sessions etc.

The overall internship experience was enthralling. I learnt from both technological as well as managerial aspects. The company's multicultural and multidimensional work has helped me grow at personal and professional level. The knowledge gained has set a perspective which will always help in my career path for taking better decisions as a future manager.



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Appendix

Approval from Guide:

Final project Report Approval:

Project Progress Report 2 Approval:



Keerti Chouhan <keerti.chouhan@associates.scit.edu>

Jun 6 (2 days ago) ☆

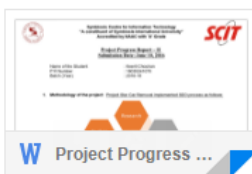


to Sunil ▾

Hello Sir,

Kindly provide your approval/suggestions for the project progress report 2 that is attached in the mail.

Thanks and Best Regards,
Keerti Chouhan
Student at SCIT



Sunil Sharma

Jun 6 (2 days ago) ☆



to me ▾

Approved.

Thanks & Regards

Project Progress Report 1 Approval:



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Keerti Chouhan <keerti.chouhan@associates.scit.edu>

to Sunil ▾

Hello Sir,

Kindly provide your comments/approval on the PPR1 that I am attaching along with the concept note.

Thanks and Best Regards,
Keerti Chouhan
Student at SCIT

2 Attachments



Sunil Sharma

to me ▾

Approved.

Thanks & Regards



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**A Report on the
Search Engine Optimization and Web Analytics
at
HawksCode Softwares Pvt. Ltd.**

Submitted by
Keerti Chouhan
16030241070
MBA-ITBM
(2016-18)

Year of submission 2017