

2. REQUIREMENT ANALYSIS

2.1 Introduction

This proposed Ahref web application is required after when you stuck into problems. This is a simplest way to find out the target device specification/modal of feedback user. Let's says you got bad comment in your Sarahah inbox but already using Ahref tool, now you know who really it is so that helps you to know who actually care about you.

2.2 Feasibility Study

Depending on the results of the initial investigation, the survey is expanded to a more detailed feasibility study. Feasibility study is a test of system proposal according to its work ability, impact on the organization, ability to meet user needs, and effective use of resources. The objective for this phase is not to solve the problem but to acquire a sense of scope. During the study, the problem definition is crystallized and aspects of the problem to be included in the system are determined because resources are being spent currently in order to achieve benefits to be received over a period of time following completion. There should be a careful assessment of each project before it is begun in terms of economic justification, technical feasibility, operational impact and adherence to the master development plan. We started the project by listing the possible queries that the user might want to be satisfied. And on these lines, we guided the project further.

The three main points, kept in mind at the time of project, are:

- Possible (To build it with the given technology and resources)
- Affordable (given the time and cost constraints of the organization)
- Acceptable (for use by the eventual users of the web application)

2.3 Data Requirements

Data requirement is meant to be the data that will be used in our web application. Data required in this project is IP/Json Data/Operating system/User Agent/Latitude and Longitude/country/city/ region/ ISP of target that is uploaded into the Database server when target click on payload.

So, the main requirements are:

- IP/Json Data/Operating system/User Agent/Latitude and Longitude/country/city/region/ISP
- Latitude and Longitude of user device

2.4 Functional Requirements

For design the Ahref web application we need to focus on the given functional requirements below:

- **URL-shortening Encoder:** If you been often work on Article writer or works as blogger you might be facing the long url problem. A links in the article help the viewer to get proper information of the respective article. A custom, or branded URL shortener, is when you've connected your own custom domain to a URL shortener which acts as a base for all the short links you create. Instead of using a generic domain such as bit.ly or rebrand.ly, you can pick your own.
 - **Example:**
https://www.huffpost.com/entry/everything-you-need-to-know-about-sarahah-the-anonymous_b_599b51eee4b0ac90f2cba943
 - **Better if you short the URL like:** <https://huffpost.com/url/ASF3453>

- **URL-shortening Decoder:** Opposite of Encrypter, if you want to see the original URL of <https://www.huffpost.com/url/ASF3453>
 - **Decrypt be:**
https://www.huffpost.com/entry/everything-you-need-to-know-about-sarahah-the-anonymous_b_599b51eee4b0ac90f2cba943
- **Tracking code:** when the user/ Guest User Short the link a Alphanumeric code is generated. This code is help to identify each longurl so that if the user wants some customization in the URL then he can. This is 5 digit alphanumeric code that help Guest user to get back to there page where they lelf without creating any user account.
- **QR-CODE:** A QR Code is a two-dimensional barcode that is readable by smartphones. It allows to encode over 4000 characters in a two-dimensional barcode. QR Codes may be used to display text to the user, to open a URL, save a contact to the address book or to compose text messages. "QR Code" is a registered trademark of DENSO WAVE INCORPORATED.
- **Dynamic QR Codes**

The content of a QR Code cannot be changed once generated. What is sometimes referred to as a Dynamic QR Code, is a QR Code pointing to a static URL that hosts the actual content (e.g. the real URL). The hosted content can be changed after the QR Code has been printed. After signing in with a Google Account, this site also allows you to generate Dynamic QR Codes (available under My Codes). They can be handled exactly as our normal QR Codes. We automatically create a static URL for you that points to your actual content. We provide simple view tracking for these Codes. You can also enter a Google Analytics Tracking ID for advanced tracking. This service is offered completely free of charge without any restrictions. Once the URL is shorten a UNIQUE QR code will generate. For the easy excess.

- **Login/signup:** User can able to save the Tracking code once their login. Rest of customization will be done from there.
- **Public Profile:** Once User can able to save the Tracking code once their Accounts now, they can show other user his profile among public links.
- **Public/private url:** This feature all user to share and show recently generated shot url among other users.
- **Forget Password:** Please note that the "reset password" link that appears in your email is **time-sensitive and can only be clicked on once**. If you access a "reset password" link that has expired, please request a new password reset email from our website. If you have requested multiple "reset password" emails, **only the most recent email will contain the correct/active link**.
- **Email Verification:** Once the user tries to create a new account the email is sent to their valid email address in order to confirm their identity. For the security purpose MD5 encryption is generated in order to send verification.
- **ISP Detect:** The Internet began as a closed network between government research laboratories and universities and colleges. As universities and colleges began giving Internet access to their faculty and other employees, ISPs were created to provide Internet access to those employees at home and elsewhere. The first ISP began in 1990 as The World, based in Brookline, Massachusetts. Individual customers and businesses pay ISPs for Internet Access. ISPs are interconnected to one another at network access points. In turn, ISPs pay other, larger ISPs for their Internet access, which in turn pay still other ISPs. This cascades multiple times until transmissions reach a Tier 1 carrier, which is an ISP capable of reaching every other network on the Internet without purchasing IP transit or paying settlements. However, it is difficult to determine the status of a network because the business agreements to pay settlements are not made public.

However, the situation is more complex than simply a single connection established to an upstream ISP. ISPs may have more than one point of presence (PoP), which is an access point to the Internet comprised of a physical location housing server, routers, ATM switches and digital/analog call aggregators. Some ISPs have thousands of PoPs. Multiple PoPs may have separate connections to an upstream ISP. And each ISP may have upstream ISPs and connections to each one of them at one or multiple PoPs.

whomever click on the generated link the ISP of the target is detected.

Example: idea, airtel, Vodaphone, Jio etc.

- **HOST:** ISP SERVER IP is detected.

User Agent Detect: When your browser connects to a website, it includes a User-Agent field in its HTTP header. The contents of the user agent field vary from browser to browser. Each browser has its own, distinctive user agent. Essentially, a user agent is a way for a browser to say “Hi, I’m Mozilla Firefox on Windows” or “Hi, I’m Safari on an iPhone” to a web server.

The web server can use this information to serve different web pages to different web browsers and different operating systems. For example, a website could send mobile pages to mobile browsers, modern pages to modern browsers, and a “please upgrade your browser” message to Internet Explorer 6.

Mozilla/5.0 (Windows NT 6.1; WOW64; rv:12.0) Gecko/20100101 Firefox/12.0

- **Other famous embed shortening services:** various other Shortening services embedded on the web app as well.
- **Note/Memo Option:** user can create a note for a specific url. Help to remember it later.
- **View counter:** A **pages views counter** is a counter which count the number of pages views of a web site. So, you have to put the pages views counter on all pages of your web site because he only counts the pages where he is present. whenever the link is hit, the view counter count by +1 and help to show the user that how many clicks has been done so far.

- **Email implementation on Every click:** Once the short tracking url is created and send or post on any social media platform now, anyone when click on it the creator get notified via email via on there respective email address. This feature is only available when user Turn on the email notification in track page. And Only available if user has a verified account.
- **Detect BOT-NET (Facebook, twitter):** If you have posted your link on Facebook, Twitter, or in a URL shortener, you may see results from various "bots" (BitlyBot, Facebookbot, etc.) Sometime its hard to differentiate between a normal user or a BOT So we create a system module that distinguish between social bots and the normal user
- **Google Re-Captcha:** CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) is a type of security measure known as challenge-response authentication. CAPTCHA helps protect you from spam and password decryption by asking you to complete a simple test that proves you are human and not a computer trying to break into a password protected account. A CAPTCHA test is made up of two simple parts: a randomly generated sequence of letters and/or numbers that appear as a distorted image, and a text box. To pass a the test and prove your human identity, simply type the characters you see in the image into the text box.

Google CAPTCHA

Google is committed to keeping your information safe and secure. CAPTCHA offers protection from remote digital entry by making sure only a human being with the right password can access your account. CAPTCHA works because computers can create a distorted image and process a response, but they can't read or solve the problem the way a human must to pass the test. Many web services, including Google, use CAPTCHA to help prevent unauthorized account entry. You may also see CAPTCHA on other sites that provide access to sensitive information, such as bank or credit card accounts.

- **Custom domain generation:** user can customize the domain name.

Example: <http://example1.com/url/AS34534>

To: <http://example2.com/url/AS34534>

NOTE: changing the domain will not affect the long URL. User is always redirect to the actual URL.

- **IP Detect:** An IP address is the most significant and important component in the networking phenomena that binds the World Wide Web together. The IP address is a numeric address assigned to every unique instance that is connected to any computer communication network using the TCP/IP communication protocols.

Network nodes are assigned IP addresses by the Dynamic Host Configuration Protocol server as soon as the nodes connect to a network. DHCP assigns IP addresses using a pool of available addresses which are part of the whole addressing scheme. Though DHCP only provides addresses that are not static, many machines reserve static IP addresses that are assigned to that entity forever and cannot be used again.

IP addresses falls into two types:

Classful IP addressing is a legacy scheme which divides the whole IP address pools into 5 distinct classes—A, B, C, D and E. Classless IP addressing has an arbitrary length of the prefixes.

- **Remove My data:** If user accidentally clicked on a short URL, or viewed a webpage with invisible URL logger generated by someone using this website without your prior acknowledgment and consent then user can immediately remove the information that could potentially be recorded in the database regarding users click or view. Although none of your personal identifiable information can be collected with ahref.tech URLs and IP-loggers, this measure will help you to minimize the risk of making your personal information available to someone else. User can remove the record with your information from the database by providing the short URL that you clicked. In order to identify and delete user information from database system have to detect user current IP address and information about infected user device. The detected information will not be saved in Ahref database. If user decide to

proceed provide full consent for to detect his IP address and device information for the purpose of removal from the database.

Please note that if user IP address or device information has changed, it may not be possible to identify user record in the database and remove it as it doesn't have any information that can identify user.

2.5 System Dependability

Following are the requirements that an web application require

- **Internet Connection:**

Application requires internet connection both on mobile or desktop so that it can fetch details of the devices and upload to the server.

- **Web Browser**

Application Requires Any kind of web Browsers but the Most Recommend browser is Google chrome.

Example: chrome, Firefox, edge, internet explorer.

- **Sharing Platforms**

Application Requires Any kind of Sharing platform so that user able to share the link via these platforms. This Act like gateway from which like travels through and reach is source destination:

Example: SMS, social platform (Facebook, twitter, Instagram)

- **Long URL**

Application Requires Any kind of normal url of any website with including domain or subdomain which need to be work.

Example: <https://abc.com>

2.6 System Requirements

- **Hardware Requirements on Developer Side**

Note: Development process need normal windows computer with web browser with below minimum specification

Processor	:	i3 or above.
RAM	:	2GB.
Hard disk	:	40GB or above.
Monitor	:	15" LCD or CRT Monitor or above.
Keyboard	:	Standard windows keyboard
Mouse	:	Standard wired Mouse

- **Server Requirements for web Hosting**

Hosting Type	:	Single web hosting Plan
SSD Space	:	10GB
Bandwidth	:	100GB
MySQL Database:	:	1
File Manager	:	yes
Server type	:	mix of apache and nginx
RAM	:	256MB
CPU	:	1 CORE

- **On Client Side for Desktop**

Device : To use Any Browser on Windows, OR minimum you'll need:

- Windows xp, Windows 7, Windows 8, Windows 8.1, Windows 10 or later
- An Intel Pentium 4 processor or later that's SSE2 capable

Note: Servers require Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, or Windows Server 2016.

Firefox 3.0 or higher, Safari 3.0 or higher (limited support for Google Chrome)

- Cookies and JavaScript must be enabled
- 1024 x 768 screen resolution or higher

Internet : Required.

- **On Client Side for Mobile**

Device Any web Browser with Android or IOS:

- Android OS
- IOS

Internet : Required.

2.7 Web App Requirements

Table: 2.7.1

Requirements	Details
Domain	http:// ahref .tech
Hosting	https://cpanel.hostinger.com
SSL	Let's Encrypt Authority X3.
Server	mix of Apache and Nginx (shared hosting)
Another Platform	Cloudflare For DDOS and filter
emails & forwarders	Yes
Databases	MySQL, phpMyAdmin
Languages (Overview)	<p>custom(html), custom (CSS), custom(jQuery)</p> <p>Bootstrap v3, v4 twitter bootstrap</p> <p>Php (procedural, prepared) v5.6, v7 SQL</p> <p>Content delivery Network files (CDN files) Glyphonic CDN files</p>

2.8 Technologies

Table 2.8.1

Requirements	Details
Widgets	<ul style="list-style-type: none">• Google Font API• reCAPTCHA• reCAPTCHA v2• Font Awesome
Frameworks	<ul style="list-style-type: none">• PHP• PHP 7
Mobile Compatibility	<ul style="list-style-type: none">• Viewport Meta• iPhone / Mobile Compatible• Mobile Non Scaleable Content
Content Delivery Network	<ul style="list-style-type: none">• CDN JS• StackPath BootstrapCDN• AJAX Libraries API• Cloudflare
JavaScript Libraries and Functions	<ul style="list-style-type: none">• Google Hosted Libraries• Google Hosted jQuery• jQuery• jQuery 3.1.1
SSL Certificates	<ul style="list-style-type: none">• SSL by Default• Cloudflare SSL
Email Hosting Providers	<ul style="list-style-type: none">• MailChannels• SPF