NEWSER

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ABSTRACT

The product defines a web-based application known as "NEWSER". The purpose of the system is to show news loving people, the news articles from across different local and international newspapers on one platform to save their time. Not only showing news articles, there are certain more functionality added to them.

In this product, the focus is on displaying news articles along with the links to their original source, where readers can search news by date, newspaper name, articles „author name and advanced keyword based search of any incident, city etc. The related news articles from other newspapers would be shown once user clicks on one article. The system will also process past week"s articles to show most frequent words appeared in news articles which could be of certain importance i-e to estimate which news has been in circulation the past few days.

The system stored all records in database related to news articles. This system is implemented in python language with Flask framework.

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Chapter # 1
Introduction

1.1 Introduction

This chapter first introduces the NEWSER(NEWS-scrapER). It highlights the problem that has been addressed in this work along with the designed and developed solution. It also elaborates project organization and project planning. Finally, this chapter explains the scope and objectives of this project.

1.2 Problem Definition

No one would disagree with the fact that how much people have gone busier these days, no matter where but such is the life. They don‟t have enough time to get themselves notified of what‟s going around in the world or more specifically their city/region. But they wish to have some mean where they can find all the news from different newspapers at one place or read news related to their city/province, certain date, certain author or type a keyword to search an incident/event, which could considerably save their precious time. Besides that, people are also interested in finding which topics were more frequent in news in recent past so they can get to know the popular news from the past week or so. Thus, they would like to see this feature be available in news sites.

1.3 Proposed Solution

NEWSER is a web-based application which will show readers news articles scraped from different national and international news websites. Users can search news by selecting date and all news articles of that day would be displayed. Similarly, users can read news of a particular newspaper by selecting its name from the list. If user clicks on a particular article, all articles related to that news would also be shown plus the link to original source. If user wants to read the articles of a specific author, he/she can do so by typing author name. An advanced keyword based search is implemented so that users can find specific news by typing its main keywords. This system is implemented in Python language with Flask framework. Mongodb database is used to store news articles and their related things. This saved information will be used in further processing.

1.4 Motivation

Now days in fast and busy world, the news readers don‟t have enough time to read through all newspapers and scroll the sites all the way to find news of their choice. The choice could be to read news of a specific date, author, newspaper or particular event/incident. They would like to see the related news of current opened article, from across different newspapers to know different opinions on that news. Some people would want to read news only related to their city. They would love to see all the news from different newspapers at one place to save their time that would have been wasted had they surfed all the news websites.

Although, newspapers try to cover every important news but still there is a possibility that one news site may provide news which is missed by another. So, a person reading that newspaper could miss news which might have been important for him. He/she would then wish to have a platform where all important news from different sites is enlisted and thus there would be less probability of missing on some important news.

Furthermore, some people want to catch up important news of the past week to get them aware of what happened in recent days. They would like to have this functionality as well.

We all wish to have comfort of having every information one click away. Having these all functionalities at one click would make users life a bit easier by reducing their efforts of searching news websites exhaustively.

1.5 Scope

The functional requirement of the project is to scrap and display news headlines, content and links to the original source. Readers can browse news by date, author‟s name, newspaper and keyword based search to particular incidents. Readers will get related news to the one they are reading right now. They can also view most frequent words appeared in news headlines in the past week which can be used for further analysis i-e news articles containing those words could be of more importance.

The non-functional requirements include using legitimate and renowned news sites to crawl data, making interface user friendly and interactive and finally, NEWSER should provide news to its readers keeping time efficiency in consideration.

1.6 Objectives

The primary objective of the NEWSER is to provide news headlines from across different news sites in order to save newsreaders" time because they wouldn‟t have to read every newspaper to find the news related to particular event/city/newspaper/date/author etc and get to know the important news in recent past.

1.7 Project Deliverables

Project deliverables are:

- Software Project Management Plan.
- Software Requirements Specification.
- Software Design Description.
- Software Test Document.
- Implementation.

1.8 Project Organization

1.8.1 Software Process Model

Agile Process Model is being used for the development of NEWSER. Agility is flexibility, it is a state of dynamic, adapted to the specific circumstances. The reason it is chosen is because it embraces changes, can expect the system requirements to change and so design the system to accommodate these changes. An agile approach combines the incremental and iterative approach by building a small portion of each feature, one by one, and then both gradually adding features and increasing their completeness.

1.8.2 Roles and Responsibilities

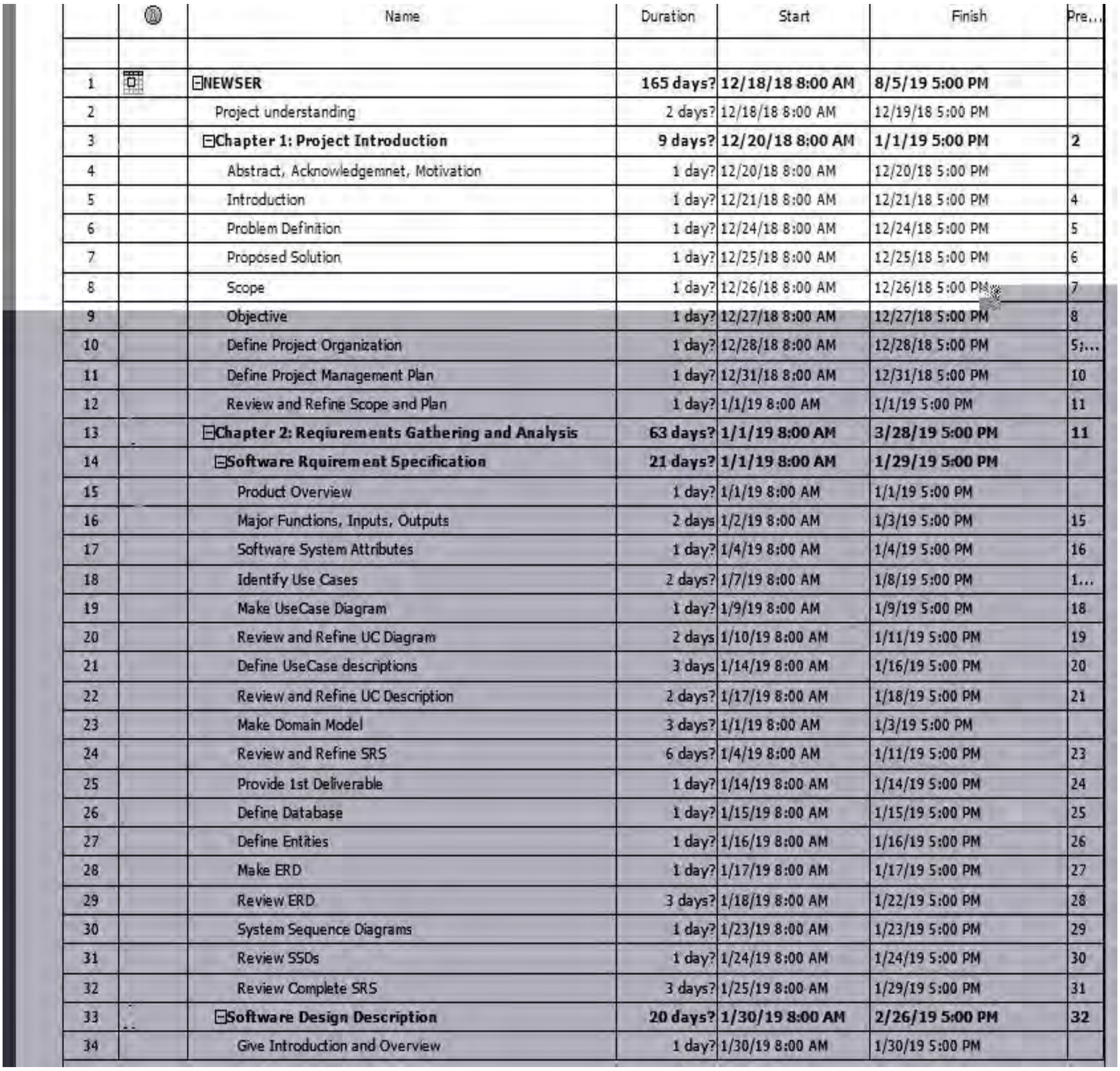
As this project is individually assigned to me, I am the only one responsible for are all the roles to be performed in accomplishment of it.

1.8.3 Tools and Techniques

The tools that are used for the implementation of this system are Sublime Text editor, Argo UML, MongoDB compass and Diagram Designer for UML diagrams such as use case diagrams, class diagrams, and domain model. Microsoft Word is used for documentation write-up. For designing a plan of the system, project libre is used. This system is implemented in Python with Flask framework. MongoDB is used as data base. Newspaper3k API is used for news articles scraping. NLTK library is used for frequent keywords extraction.

1.9 Project Management Plan

The tabular and timeline views of project plans are given below



		Name	Duration	Start	Finish	Pre...
1		**⊟NEWSER**	**165 days?**	**12/18/18 8:00 AM**	**8/5/19 5:00 PM**	
2		Project understanding	2 days?	12/18/18 8:00 AM	12/19/18 5:00 PM	
3		**⊟Chapter 1: Project Introduction**	**9 days?**	**12/20/18 8:00 AM**	**1/1/19 5:00 PM**	**2**
4		Abstract, Acknowledgemnet, Motivation	1 day?	12/20/18 8:00 AM	12/20/18 5:00 PM	
5		Introduction	1 day?	12/21/18 8:00 AM	12/21/18 5:00 PM	4
6		Problem Definition	1 day?	12/24/18 8:00 AM	12/24/18 5:00 PM	5
7		Proposed Solution	1 day?	12/25/18 8:00 AM	12/25/18 5:00 PM	6
8		Scope	1 day?	12/26/18 8:00 AM	12/26/18 5:00 PM	7
9		Objective	1 day?	12/27/18 8:00 AM	12/27/18 5:00 PM	8
10		Define Project Organization	1 day?	12/28/18 8:00 AM	12/28/18 5:00 PM	5;...
11		Define Project Management Plan	1 day?	12/31/18 8:00 AM	12/31/18 5:00 PM	10
12		Review and Refine Scope and Plan	1 day?	1/1/19 8:00 AM	1/1/19 5:00 PM	11
13		**⊟Chapter 2: Reqiurements Gathering and Analysis**	**63 days?**	**1/1/19 8:00 AM**	**3/28/19 5:00 PM**	**11**
14		**⊟Software Rquirement Specification**	**21 days?**	**1/1/19 8:00 AM**	**1/29/19 5:00 PM**	
15		Product Overview	1 day?	1/1/19 8:00 AM	1/1/19 5:00 PM	
16		Major Functions, Inputs, Outputs	2 days	1/2/19 8:00 AM	1/3/19 5:00 PM	15
17		Software System Attributes	1 day?	1/4/19 8:00 AM	1/4/19 5:00 PM	16
18		Identify Use Cases	2 days?	1/7/19 8:00 AM	1/8/19 5:00 PM	1...
19		Make UseCase Diagram	1 day?	1/9/19 8:00 AM	1/9/19 5:00 PM	18
20		Review and Refine UC Diagram	2 days	1/10/19 8:00 AM	1/11/19 5:00 PM	19
21		Define UseCase descriptions	3 days	1/14/19 8:00 AM	1/16/19 5:00 PM	20
22		Review and Refine UC Description	2 days?	1/17/19 8:00 AM	1/18/19 5:00 PM	21
23		Make Domain Model	3 days?	1/1/19 8:00 AM	1/3/19 5:00 PM	
24		Review and Refine SRS	6 days?	1/4/19 8:00 AM	1/11/19 5:00 PM	23
25		Provide 1st Deliverable	1 day?	1/14/19 8:00 AM	1/14/19 5:00 PM	24
26		Define Database	1 day?	1/15/19 8:00 AM	1/15/19 5:00 PM	25
27		Define Entities	1 day?	1/16/19 8:00 AM	1/16/19 5:00 PM	26
28		Make ERD	1 day?	1/17/19 8:00 AM	1/17/19 5:00 PM	27
29		Review ERD	3 days?	1/18/19 8:00 AM	1/22/19 5:00 PM	28
30		System Sequence Diagrams	1 day?	1/23/19 8:00 AM	1/23/19 5:00 PM	29
31		Review SSDs	1 day?	1/24/19 8:00 AM	1/24/19 5:00 PM	30
32		Review Complete SRS	3 days?	1/25/19 8:00 AM	1/29/19 5:00 PM	31
33		**⊟Software Design Description**	**20 days?**	**1/30/19 8:00 AM**	**2/26/19 5:00 PM**	**32**
34		Give Introduction and Overview	1 day?	1/30/19 8:00 AM	1/30/19 5:00 PM	

Figure 1-Time Table

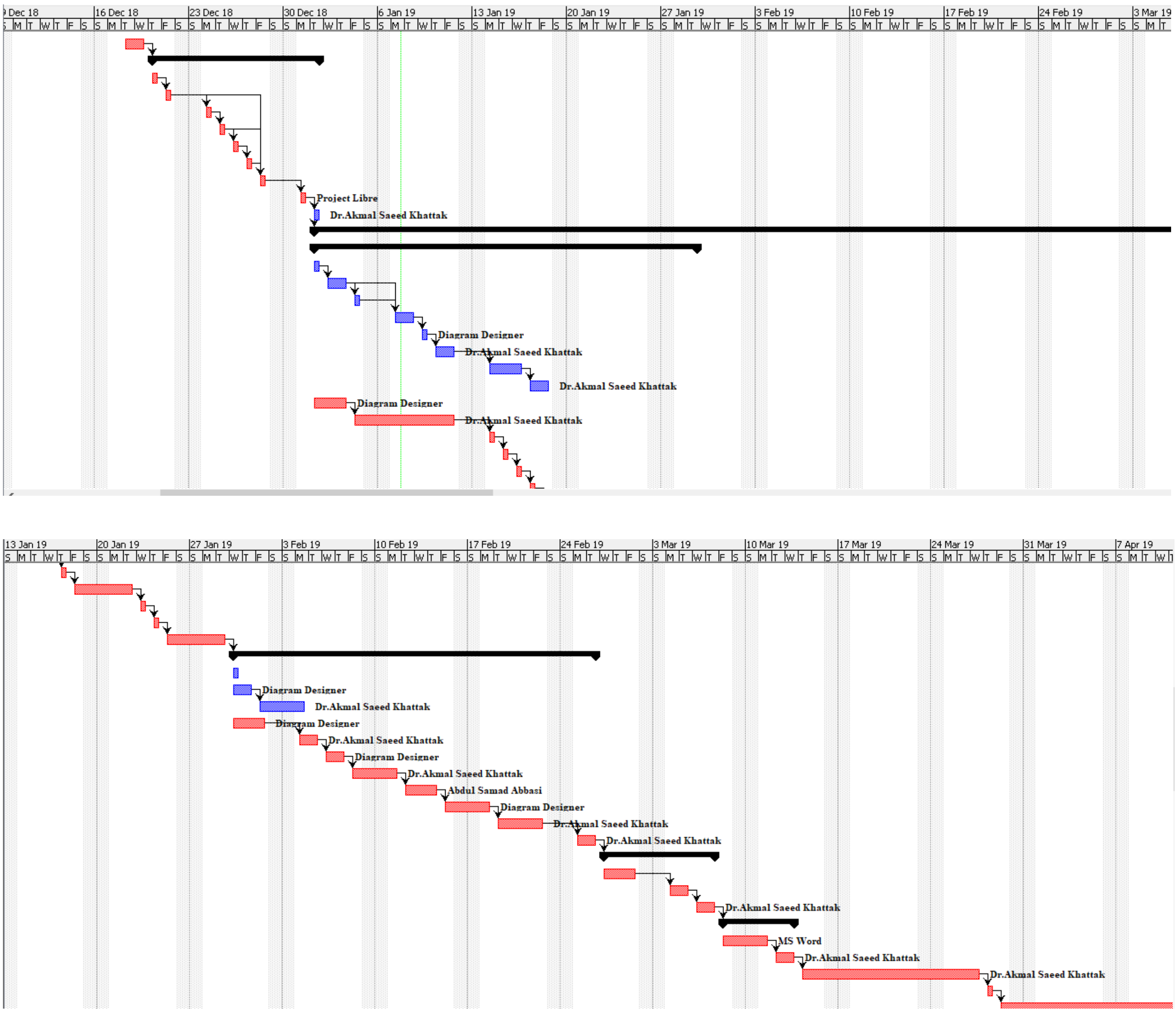


Figure 2-Gantt Chart

1.10 Report Structure

This chapter has briefly introduced the system including problem description, proposed solution, scope, objective, and described the organization of the project and project management plan. Chapter 2 describes the functional and non-functional requirement of the system.

Chapter # 2
Requirements Gathering and Analysis

2.1 Product Overview

This web-based application is going to be implemented in Python programming language. This product performs crawling of the news articles from different local and international news sites that will show general news as well as filtered ones based on date, newspaper, authors‟ name or any news related to a specific incident by its name.

2.2 Major functions

The major functions of the NEWSER are:

1. Scraping whole news articles along with the images from different sources and display those with clickable links back to those sources.
2. Displaying news based on newspaper name.
3. Displaying news of particular dates.
4. Filtering news by author"s name.
5. Showing related news of the current opened news article.
6. Displaying most frequent keywords appeared in news headlines in the past week or so.
7. Displaying news based on keywords entered.
8. Displaying most viewed articles.

2.3 Major Inputs and Outputs

2.3.1 Major Inputs

Major inputs are given below:

- Date selection.
- Author‟s name selection.
- Newspaper‟s name selection.
- Keywords to search news articles related to them.

2.3.2 Major Outputs

Major outputs of the system are:

- General news articles from all news sources.
- News articles based on date selection.
- News articles of the author‟s name selected.

- News articles of the newspaper name selected.
- Most frequent keywords appeared in news articles‟ heading in past week.
- News articles based on keywords typed
- Most viewed news articles.
- Related news articles of the article that user is reading right now.

2.4 Definitions, Acronyms and Abbreviations

Table 1 Abbreviation and Definitions

Terms	Description
NEWSER	NEWS scrapER
UML	Unified Modeling Language
User	News Readers
System	Web-based Application (NEWSER)

2.5 Overview

The rest of the chapter focuses on functional, non-functional and performance requirements. The overall functionality of the system, use cases, their description, and domain model have also been elucidated.

2.6 User Characteristics

It is expected that the users/readers have computers or mobiles with an internet connection and they also know how to use them to access websites.

2.7 Constraints

Users must have working internet connection and some means i-e computer/mobile to access the internet.

2.8 Assumptions and Dependencies

It is assumed that the users/readers have computers or mobiles with an internet connection and they also know how to use them to access websites.

2.9 Specific Requirements

2.9.1 Functional Requirements

The basic functional requirements are given below.

- Scrap general news articles from different news websites and display them with clickable links back to those sources.
- Give most frequent keywords of the past week.
- Display news articles of a specific date.
- Display most viewed articles in the application.
- Display news articles from a specific newspaper.
- Display news based on author‟s name selected.
- Provide keyword based searching of news articles.

2.10 Software System Attributes

2.10.1 Reliability

The system should be reliable that is it should have almost no zero occurrence of failure. It should be able to work properly all the time. The system should give proper response of every user action.

2.10.2 Availability

System should be available to users all the time. System should crawl news whenever it is updated on the source news site.

2.10.3 Maintainability

Usually, maintainability involves continuous improvement in the system or improve the reliability of the system based on maintenance experience. The application should be easy to extend. The code should be written in a way that is favors implementation of new functions.

2.10.4 Security

Since this system will be hosted on internet, anyone should be able to access its services through an appropriate digital device with an internet connection. There‟s no accounts maintaining hence no security issues at first place.

2.10.5 Portability

It is a web-based application and can run on any digital computer provided it has an active internet connection and some application software like browsers installed.

2.10.6 Performance

The system must have strong computing capabilities for data processing in order to perform keyword based searching and making word cloud of popular keywords. System should be able to deal with numerous users at a time.

2.11 Product Functions

2.11.1 Analyze System

Administrator has rights to analyze the whole functionality of the system. Administrator can add newspapers sites.

2.12 Use Case Diagram

User can view General news headlines, Search by Newspaper, Filter by Date, Search articles by Author"s name, view most viewed articles, view Single Article which is then more elaborated with links to original source and related articles. Popular keywords of the past week are also shown so does Popular News. User can search any incident by typing its keywords in the Advanced Keyword Search option.

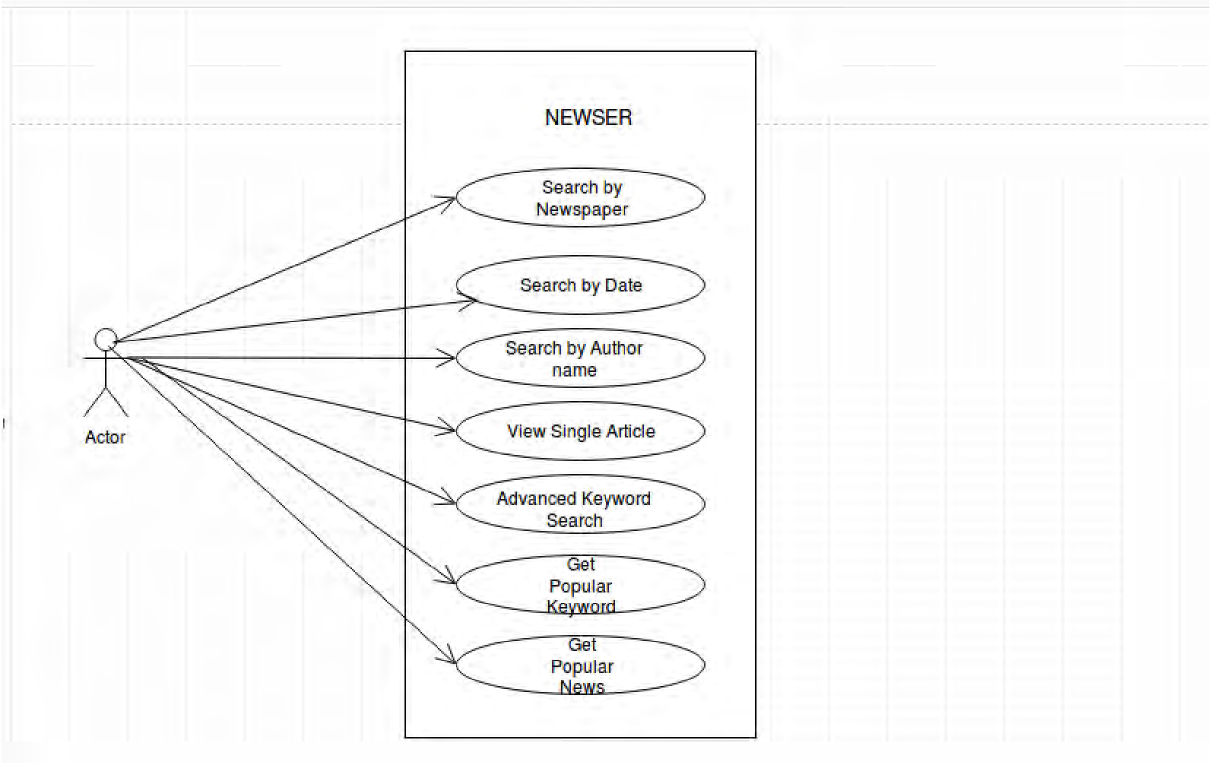


Figure 3 Use Case Diagram

2.13 Use Case Description

2.13.1 Use Case 1: Search by Date

Table 2 Search by Date Usecase Desc

ID	UC1
Name	Search By Date
Primary Actor	User
Pre-Conditions	User has opened the application.
Post-Conditions	News articles of the date selected are displayed.
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on Search by Date option 4. System displays a date selection option. 5. User selects the date. 6. User clicks on Submit Query button. 7. System shows news articles of that date.
Alternative Flows or Extensions	1a**.** News related to date entered is not available. 1. System displays an empty result. 2a. User clicks on Submit Query without selecting date. 2. System does not submit anything.

2.13.2 Use Case 2: Search by Author’s name

Table 3 Search by Author’s name Usecase Desc

ID	**UC2**
Name	Search By Author‟s name
Primary Actor	User
Pre-Conditions	User has opened the application.
Post-Conditions	All news articles of the author selected are shown.
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on Search by Author option 4. System displays a search option. 5. User enters the name of author. 6. User selects name of author shown in drop down and press Enter. 7. System shows news articles of that author.
Alternative Flows or Extensions	1a**.** News articles of that author are not available. 1. System displays an empty result. 2a. User presses Enter key without selecting author‟s name. 2. System does not submit anything.
Frequency	Could be nearly continuous

2.13.3 Use Case 3: Search by Newspaper

Table 4 Search by Newspaper Usecase desc

ID	**UC3**
Name	Search by Newspaper
Primary Actor	User
Pre-Conditions	User has opened the application.
Post-Conditions	All articles of the newspaper selected are shown.
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on National/International option 4. System displays a list of all newspapers according to the option selected. 5. User selects the newspaper. 6. System shows news articles of that newspaper.

2.13.4 Use Case 4: Get most Frequent Keywords

Table 5 Get Frequent Keywords Usecase Desc

ID	**UC4**
Name	Get most Frequent Keywords
Primary Actor	User
Pre-Conditions	User has opened the application.
Post-Conditions	Most frequent keywords appeared in news title from past week are displayed.
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on Popular Keywords option 4. System displays a list of all most frequently used keywords in the news title from past week
Alternative Flows or Extensions	1a) Server down or internet connection not working. 1. User waits until server response and internet connection is recovered. 2a) At any time system crashes. 2. User restarts system.
Frequency	Could be nearly continuous.

2.13.5 Use Case 5: Most Viewed News Articles

Table 6 Get Popular News Articles Usecase Desc

ID	**UC5**
Name	Get Popular News Articles
Primary Actor	User
Pre-Conditions	User has opened the application
Post-Conditions	Most viewed articles in the system are diplayed
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on Most Viewed news articles option 4. System displays most viewed news articles.
Alternative Flows or Extensions	1a) Server down or internet connection not working. 3. User waits until server response and internet connection is recovered. 2a) At any time system crashes. 4. User restarts system.
Frequency	Could be nearly continuous.

2.13.6 Use Case 6: Read Single Article

Table 7 Read Single Article Usecase Desc

ID	**UC3**
Name	Read Single Article
Primary Actor	User
Pre-Conditions	News articles are displayed on the screen
Post-Conditions	
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on some news article‟s title. 4. System displays that article with its content and link to the source. 5. System displays related articles from other news sources.
Alternative Flows or Extensions	1a) Server down or internet connection not working. 5. User waits until server response and internet connection is recovered. 2a) At any time system crashes. 6. User restarts system.
Frequency	Could be nearly continuous.

2.13.7 Use Case 7: Advanced Keyword Searching

Table 8 Advance Keyword Search Usecase Desc

ID	**UC7**
Name	Advanced Keywords Search
Primary Actor	User
Pre-Conditions	User has opened the application
Post-Conditions	News articles related to the keywords are displayed
Main Success Scenario	1. User opens the NEWSER application. 2. System displays some random general news articles. 3. User clicks on Search option 4. System displays options for advanced keywords search like searching a phrase or negation of a keyword in the results. 5. System asks user to type a keyword 6. User types a keyword and presses Enter. 7. System displays news articles related to that keyword.
Alternative Flows or Extensions	1a) News articles related to typed keyword are not available 1. System displays no articles. 2a) At any time system crashes. 2. Admin restarts system.
Frequency	Could be nearly continuous

2.14 Domain Model

This model represents different entities such as news articles, news sources and users. News articles are scraped from news sources. News articles have title, content, link, image, and published date. Users can browse news by Date, Author‟s name or Newspaper name. Users can also search an incident in news by using an advanced keyword search option.

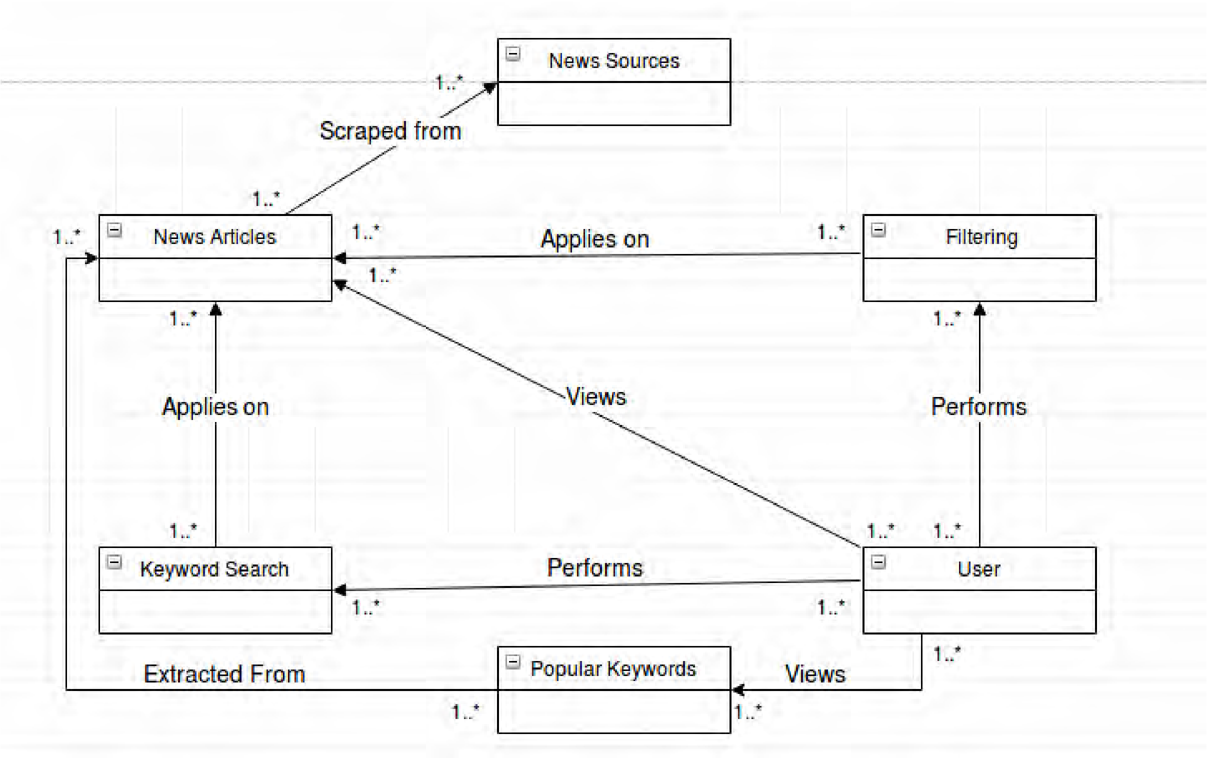


Figure 4 Domain Model

2.15 Database Requirements

Since I"ve used MongoDB database which is NoSQL and non-relational database. All the articles are stored as documents in a single collection. Thus there is no ERD.

2.16 System Sequence Diagrams

The purpose of **System Sequence Diagram (SSD)** is to illustrate the successful scenario of a use case in a visual format.

2.16.1 SSD for Browse by Date

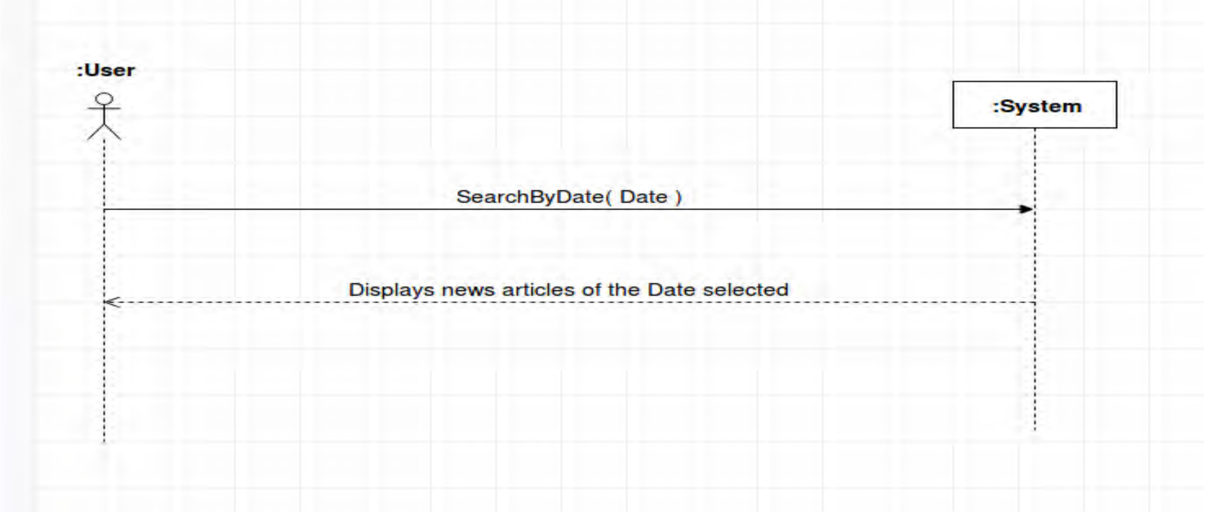


Figure 5 SSD for browse by Date

2.16.2 SSD for Browse by Newspaper

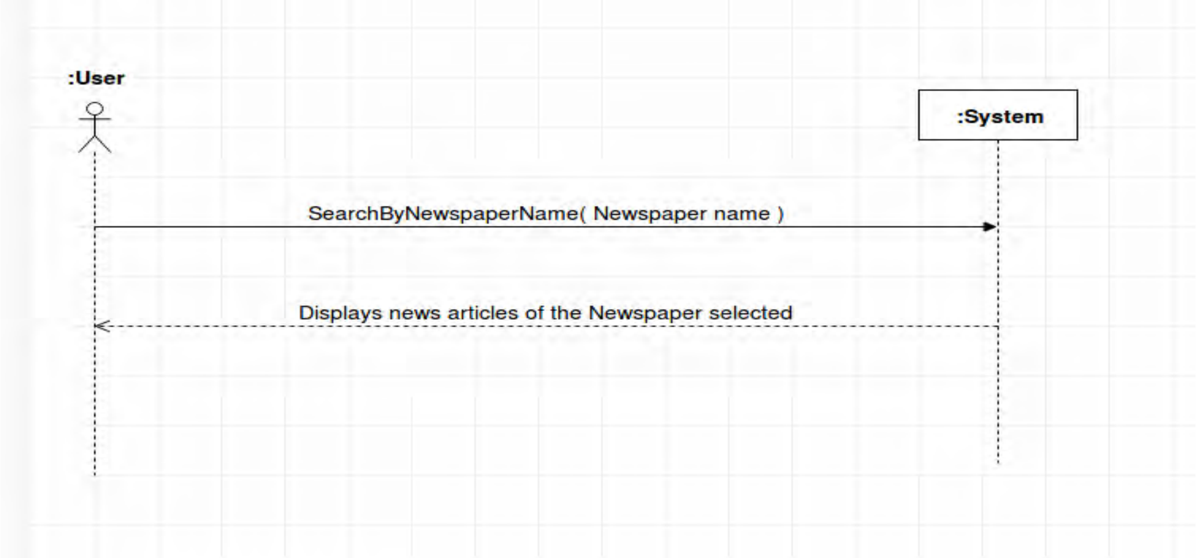

:User
:System
SearchByNewspaperName(Newspaper name)
Displays news articles of the Newspaper selected

Figure 6 SSD for browse by Newspaper

2.16.3 SSD for Browse by Author's name

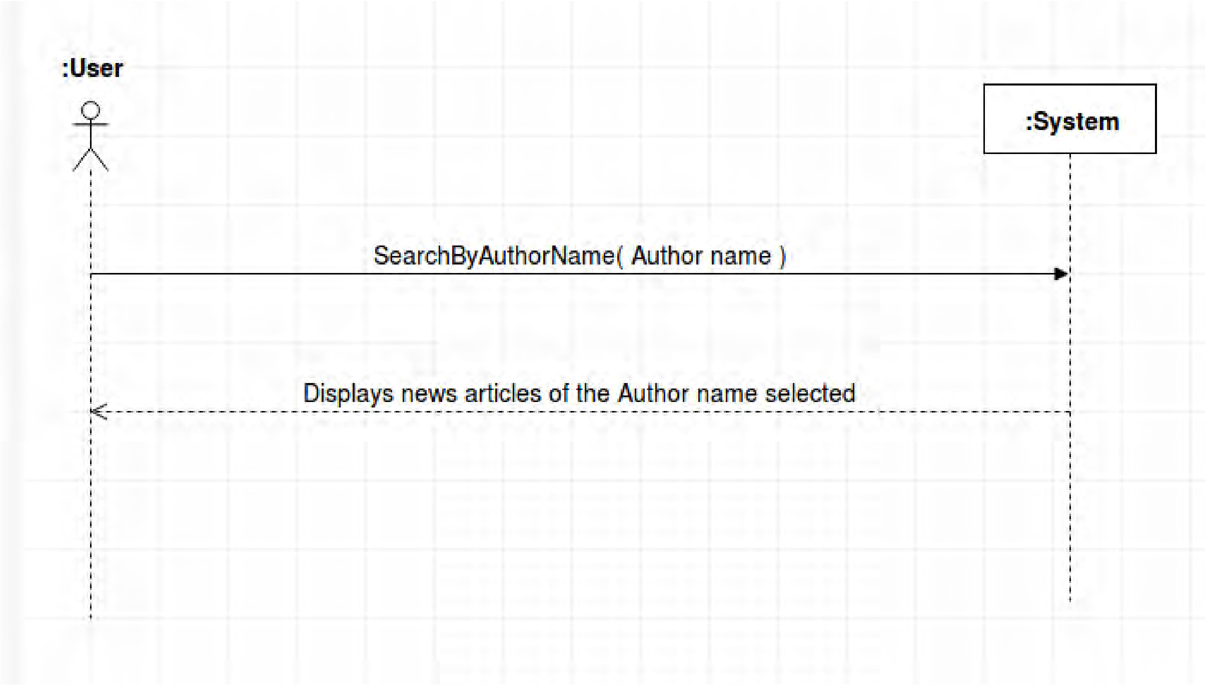

:User
:System
SearchByAuthorName(Author name)
Displays news articles of the Author name selected

Figure 7 SSD for browse by Author's name

2.16.4 SSD for Advanced Keywords Searching

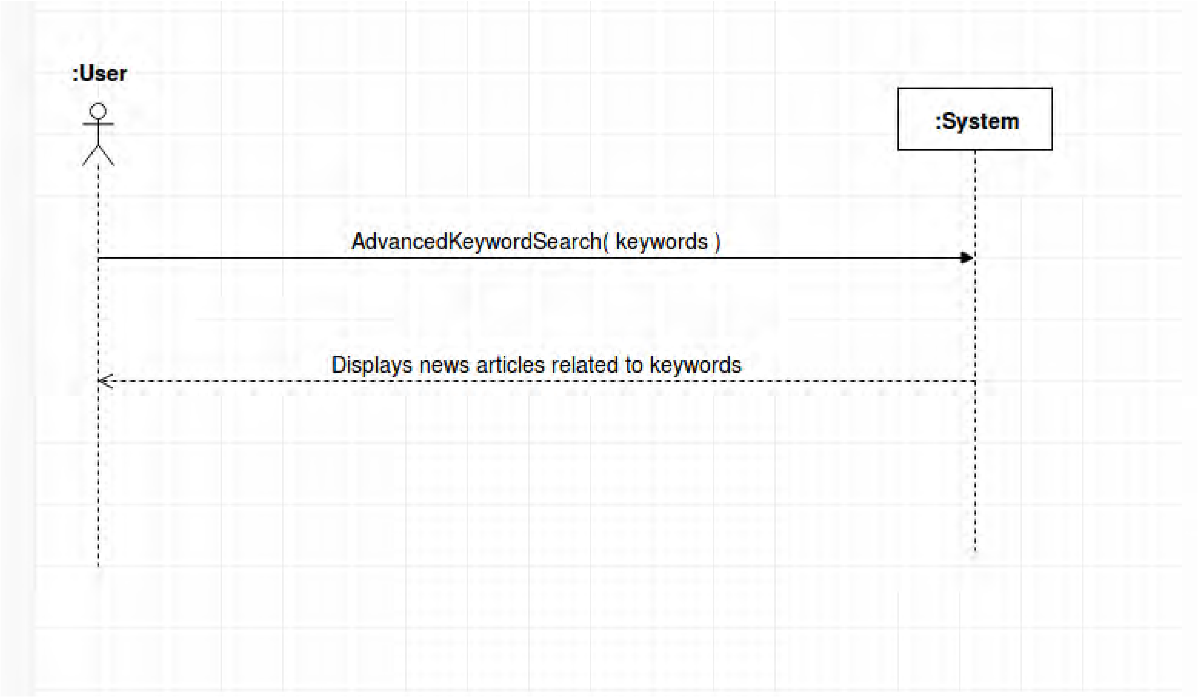

:User
:System
AdvancedKeywordSearch(keywords)
Displays news articles related to keywords

Figure 8 SSD for Advanced Keywords Searching

2.16.5 SSD for Viewing Popular Articles

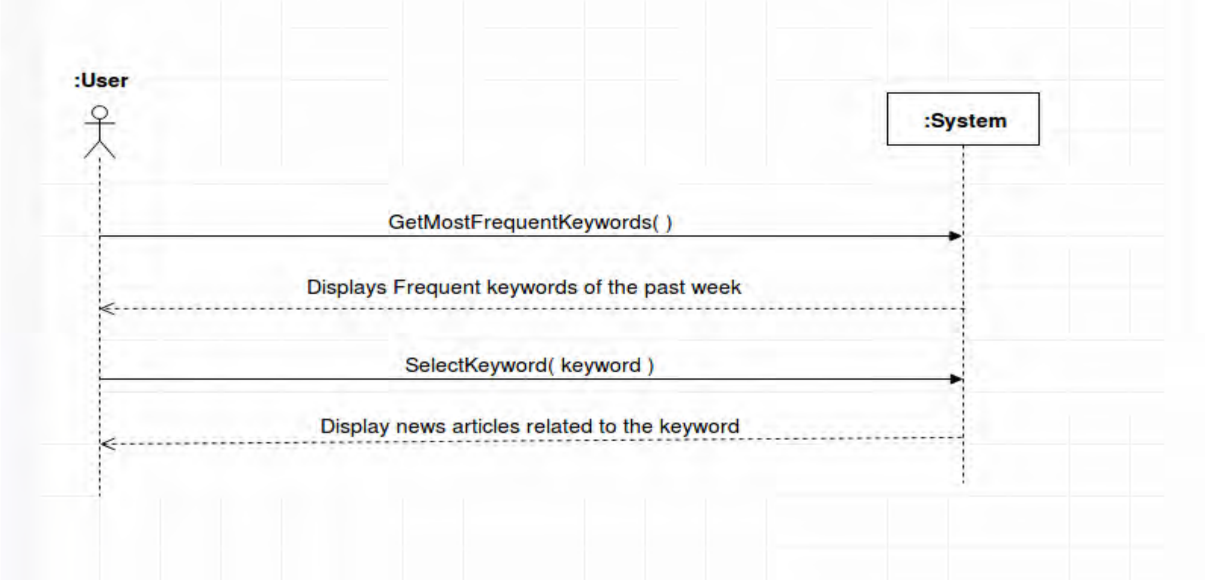

:User
:System
GetMostFrequentKeywords( )
Displays Frequent keywords of the past week
SelectKeyword(keyword)
Display news articles related to the keyword

Figure 9 SSD for Viewing Popular Article

2.16.6 SSD for Viewing Most Frequent Keywords

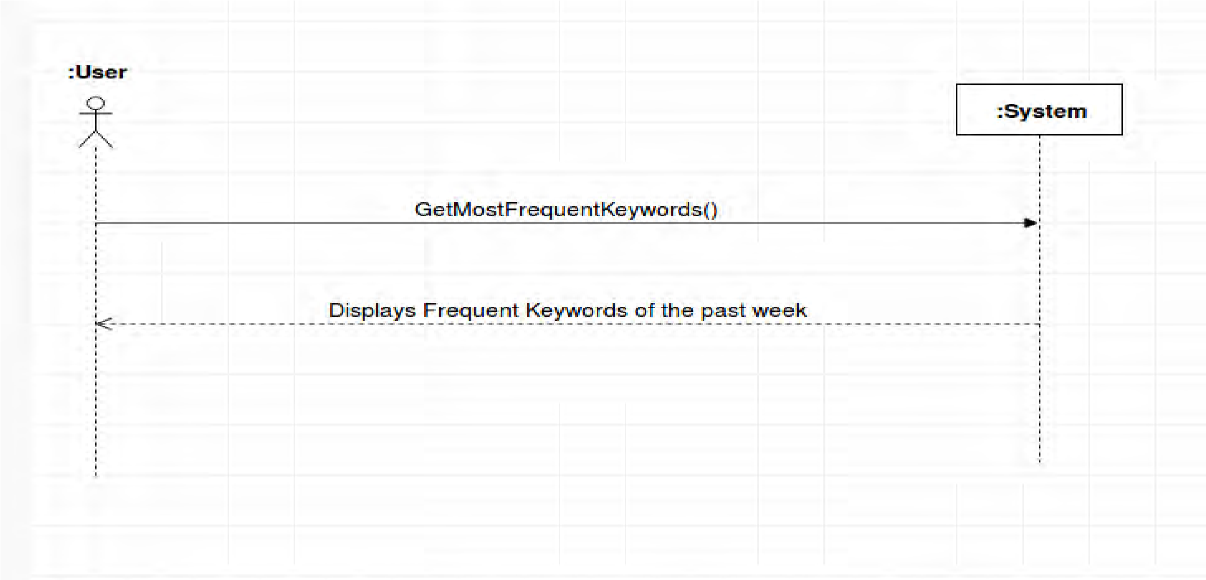

:User
:System
GetMostFrequentKeywords()
Displays Frequent Keywords of the past week

Figure 10 SSD for viewing popular keywords

2.16.7 SSD for Viewing Single Article

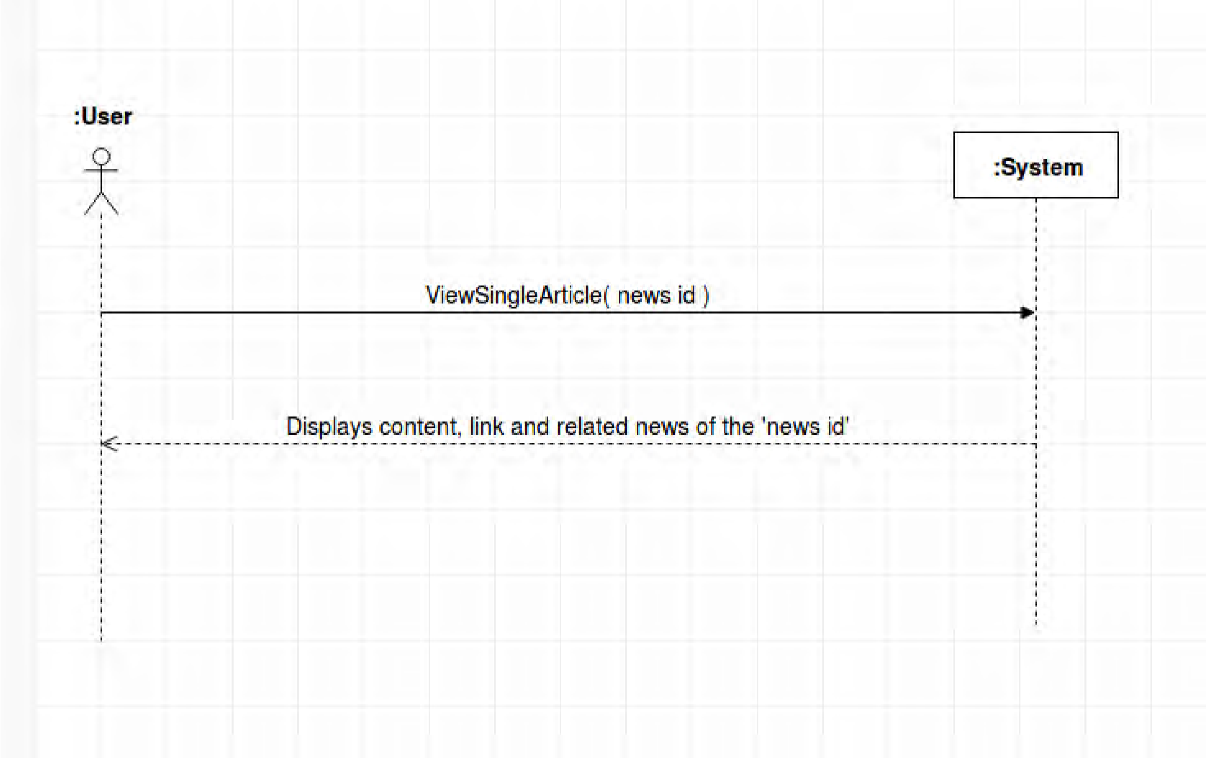

:User
:System
ViewSingleArticle(news id)
Displays content, link and related news of the 'news id'

Figure 11 SSD for viewing Single Article

2.17 Report Structure

This chapter has provided an overview of the requirements gathering and analysis. The description is based on the functional and non-functional requirements. Next chapter is based on software design aspects.

Chapter # 3
Software Design Description

This chapter first gives the complete description of the software design. It then elaborates the architectural design and detailed description of the components of the system. Finally, elucidates the user interface design and interaction diagrams such as system sequence and class diagrams.

3.1 Introduction

Software Design Description (SDD) is the representation of a software design which is used for communicating design information of a system to its stakeholders. It shows how the software system will be structured to satisfy the requirements. The SDD is specified into two stages. The first is a preliminary design in which the overall system architecture and data architecture are designed and defined, respectively. In the second stage, the more detailed data structures are defined, and algorithms and codes are developed based on the defined architecture.

3.1.1 Design Overview

Design begins with requirement model and at each stage. The software design work product is reviewed for clarity, correctness, and completeness. Software design sits at the technical kernel of software engineering and is applied regardless of the software process model that is used. The requirements translated clearly through designing class diagram, sequence diagram and user interface interactions.

3.1.2 Requirement Traceability Matrix

Table 9 Requirement Traceability Matrix

Requirement Id	Requirement Name	System Sequence Diagram	Test Case	Interface
UC:1	Search By Date	Figure 5	Table 14	Figure 19
UC:2	Search By Author"s name	Figure 7	Table 15	Figure 20
UC:3	Search By Newspaper name	Figure 6	no	no
UC:4	Get Most Frequent Words	Figure 10	Table 16	Figure 22

UC:5	Get Popular News Articles	Figure 9	Table 17	Figure 21
UC:6	Read Single Article	Figure 11	Table 18	no
UC:7	Advanced Keyword Searching	Figure 8	Table 23	Figure 24

3.2 System Architecture Design

Architectural design defines the relationship between major structural elements of the software. It defines the design patterns that can be used to satisfy the requirements that have been defined for the system. Architecture design entails the way these components interact and the structure of data that are used by the components. Components or modules are generalized to represent major system elements and their interactions.

3.2.1 Chosen System Architecture

The chosen architecture for this system is three tier and client-server architectural pattern shown in the figure below. The three-tier architecture is a software architecture pattern in which the user interface (presentation), functional process logic (Application logic), and computer data storage are developed and maintained as independent modules. The presentation (interface) layer focuses on user interfaces, where user can perform different actions/queries. The application (business) logic is the second layer, which includes logical flow of the system. Actions performed by the user through the presentation layer are received by the application logic layer and it manipulates accordingly. The final layer is the database layer, which relates to the controller class in the application layer. Database can store all necessary information related to news articles.

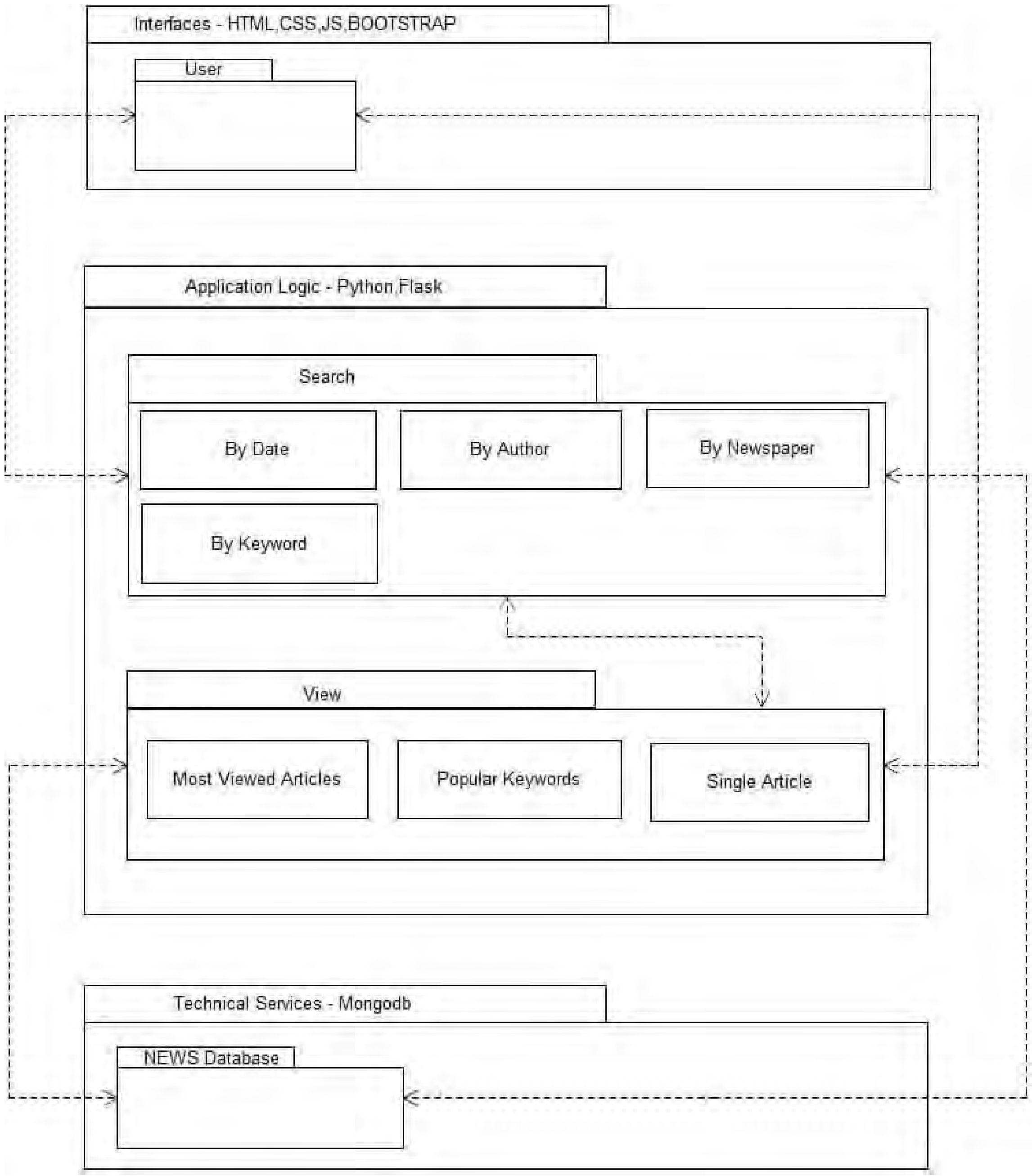


Figure 12 System Architecture Diagram

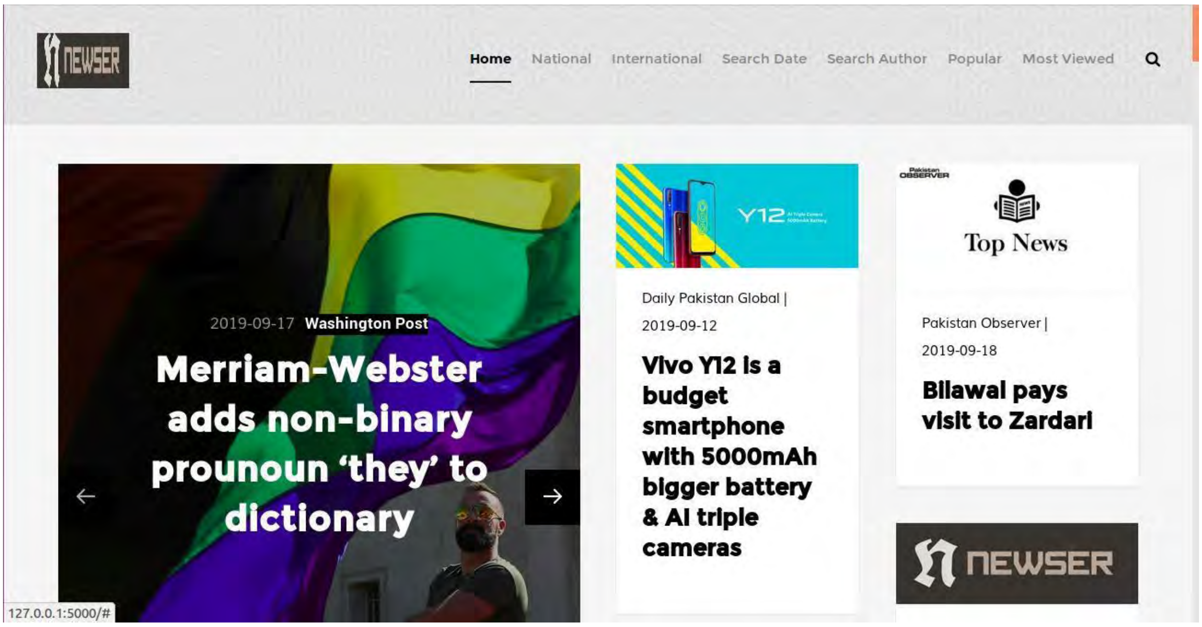
3.3 User Interface Design

User interface design establishes effective communication between a user and a computer. The user interface design begins with the identification of users, tasks, and environmental requirements.

3.3.1 Description of User Interface Design

User Interface is the part of the software and is designed in such a way that it is expected to provide the user insight of the system. The following interfaces are given, Home page, Search by Date, Search by Author‟s name, Search by Newspaper name, Single Article, Advanced Keyword Search, Popular Keywords search.

Interface 1: Home Page



2019-09-17 Washington Post

Merriam-Webster adds non-binary prounoun 'they' to dictionary

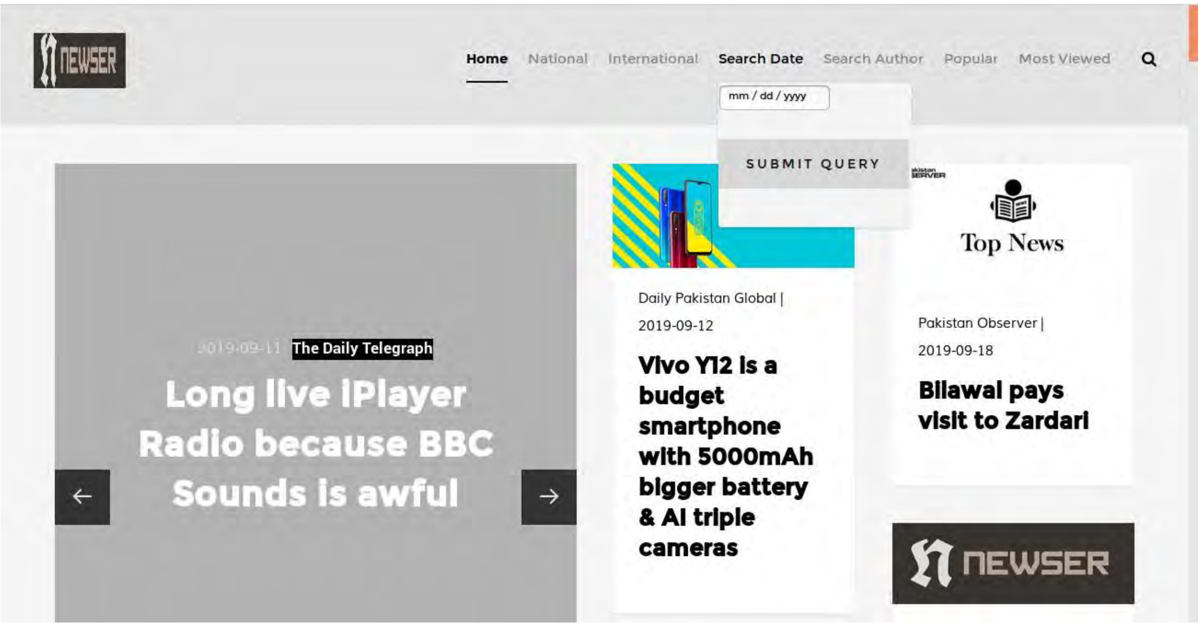
Daily Pakistan Global |
2019-09-12

Vivo Y12 is a budget smartphone with 5000mAh bigger battery & AI triple cameras

Pakistan Observer |
2019-09-18

Bilawal pays visit to Zardari

Interface 2: Search by Date



2019-09-11 The Daily Telegraph

Long live iPlayer Radio because BBC Sounds is awful

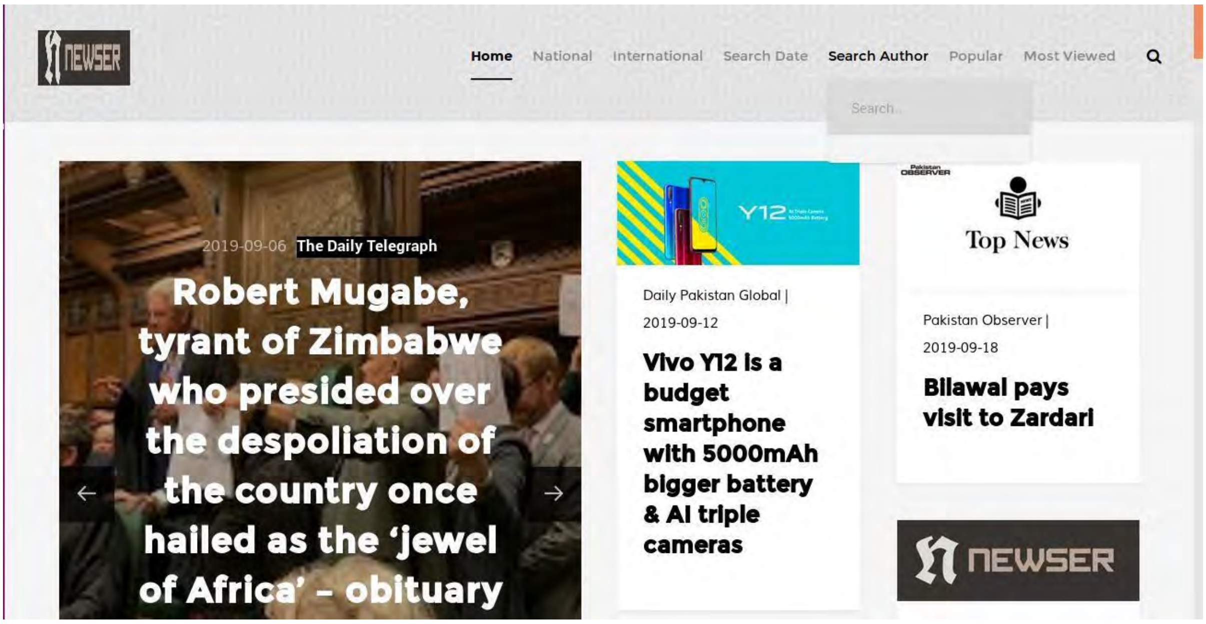
Daily Pakistan Global | 2019-09-12

Vivo Y12 is a budget smartphone with 5000mAh bigger battery & AI triple cameras

Pakistan Observer | 2019-09-18

Bilawal pays visit to Zardari

Interface 3: Search by Author's name



2019-09-06 The Daily Telegraph

Robert Mugabe, tyrant of Zimbabwe who presided over the despoliation of the country once hailed as the 'jewel of Africa' – obituary

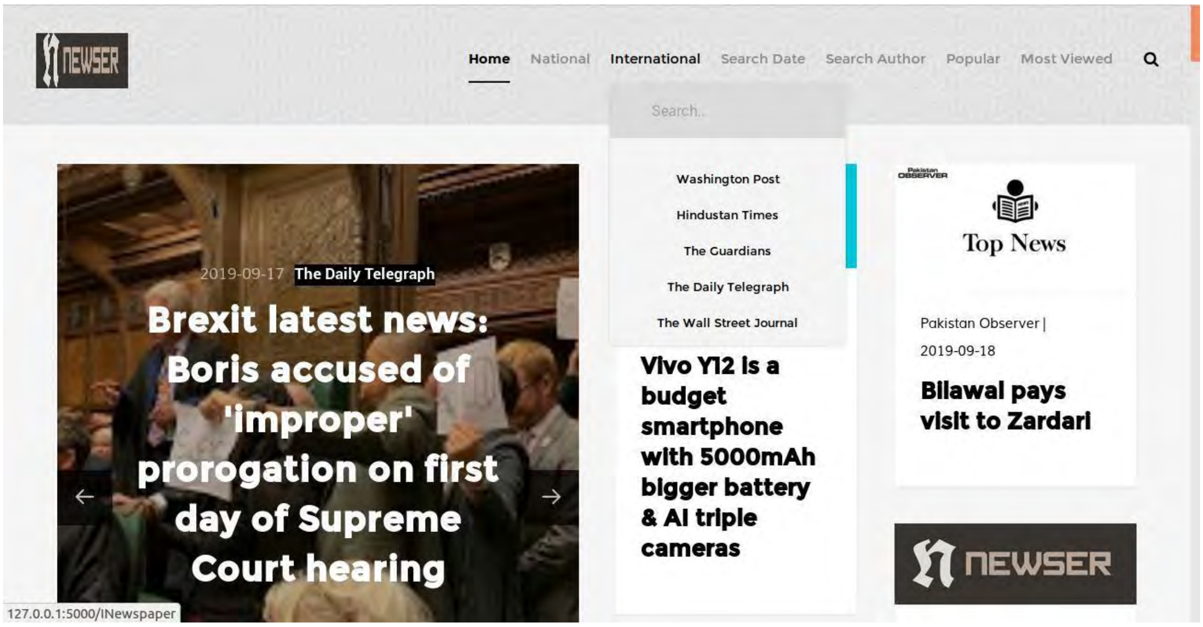
Daily Pakistan Global | 2019-09-12

Vivo Y12 is a budget smartphone with 5000mAh bigger battery & AI triple cameras

Pakistan Observer | 2019-09-18

Bilawal pays visit to Zardari

Interface 4: International Newspaper



2019-09-17 The Daily Telegraph

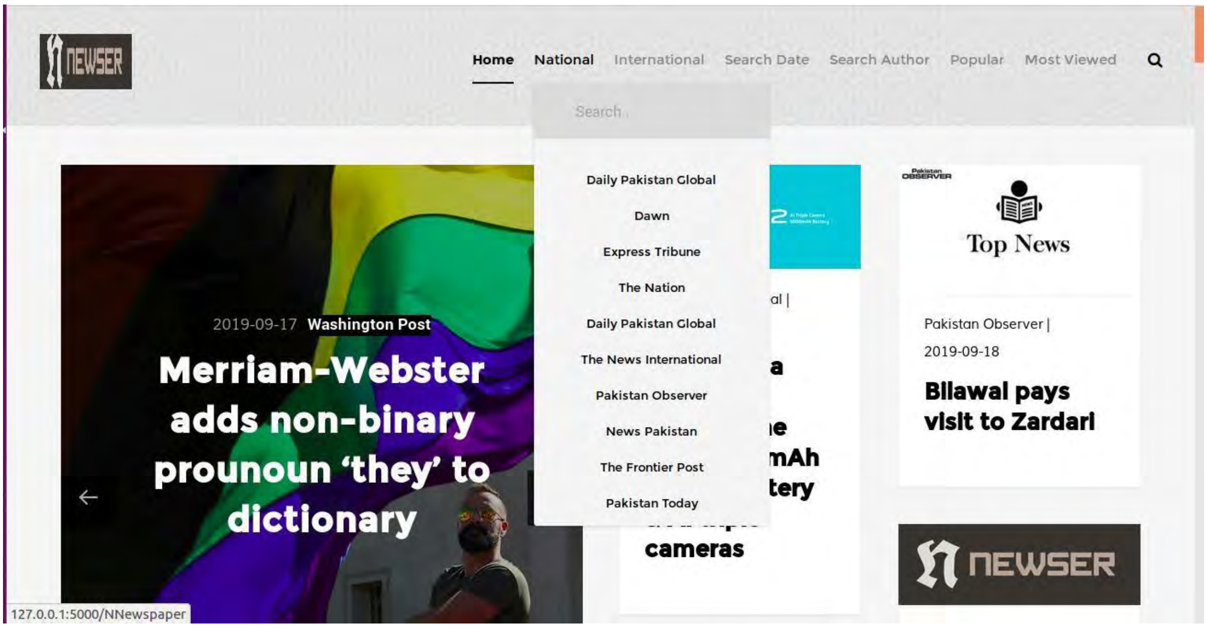
Brexit latest news: Boris accused of 'improper' prorogation on first day of Supreme Court hearing

Vivo Y12 is a budget smartphone with 5000mAh bigger battery & AI triple cameras

Pakistan Observer | 2019-09-18

Bilawal pays visit to Zardari

Interface 5: National Newspaper



2019-09-17 Washington Post

Merriam-Webster adds non-binary prounoun 'they' to dictionary

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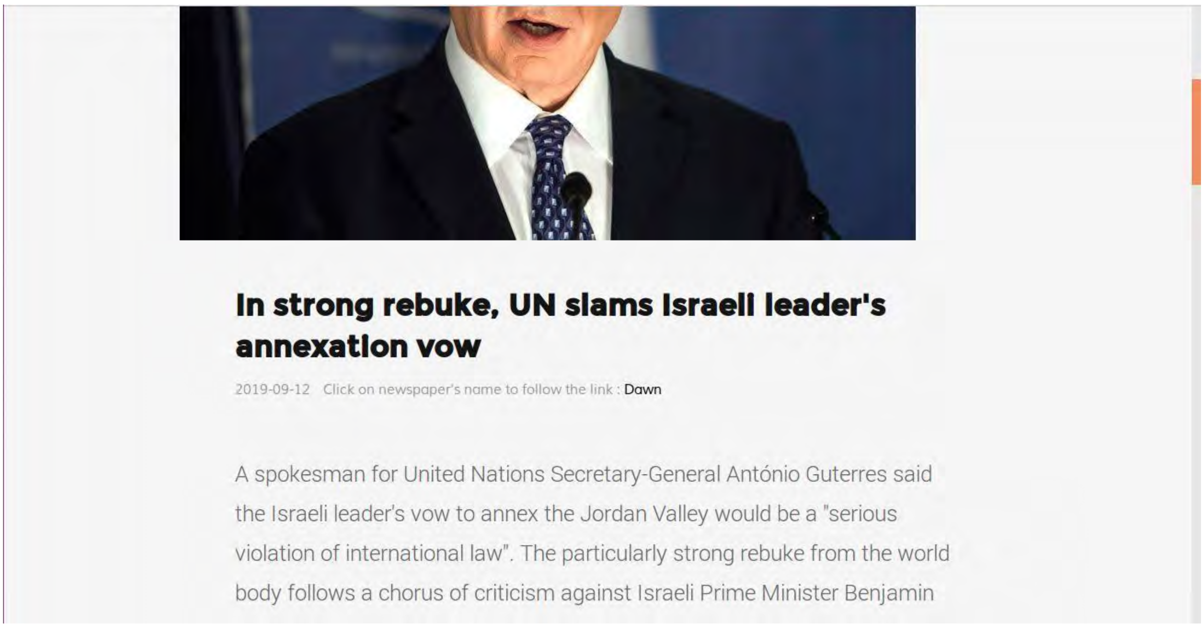
Pakistan Observer | 2019-09-18

Bilawal pays visit to Zardari

Interface 5: Single Article

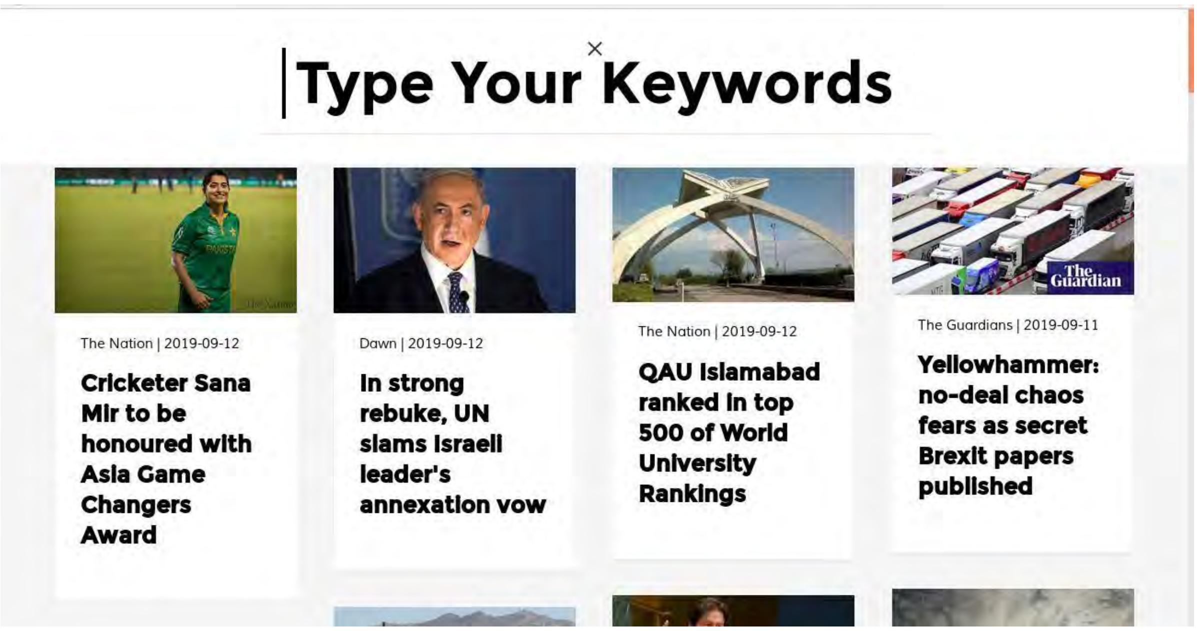


In strong rebuke, UN slams Israeli leader's annexation vow

2019-09-12 Click on newspaper's name to follow the link : Dawn

A spokesman for United Nations Secretary-General António Guterres said the Israeli leader's vow to annex the Jordan Valley would be a "serious violation of international law". The particularly strong rebuke from the world body follows a chorus of criticism against Israeli Prime Minister Benjamin

Interface 6: Advanced Keyword Search



Type Your Keywords

The Nation | 2019-09-12

Cricketer Sana Mir to be honoured with Asia Game Changers Award

Dawn | 2019-09-12

In strong rebuke, UN slams Israeli leader's annexation vow

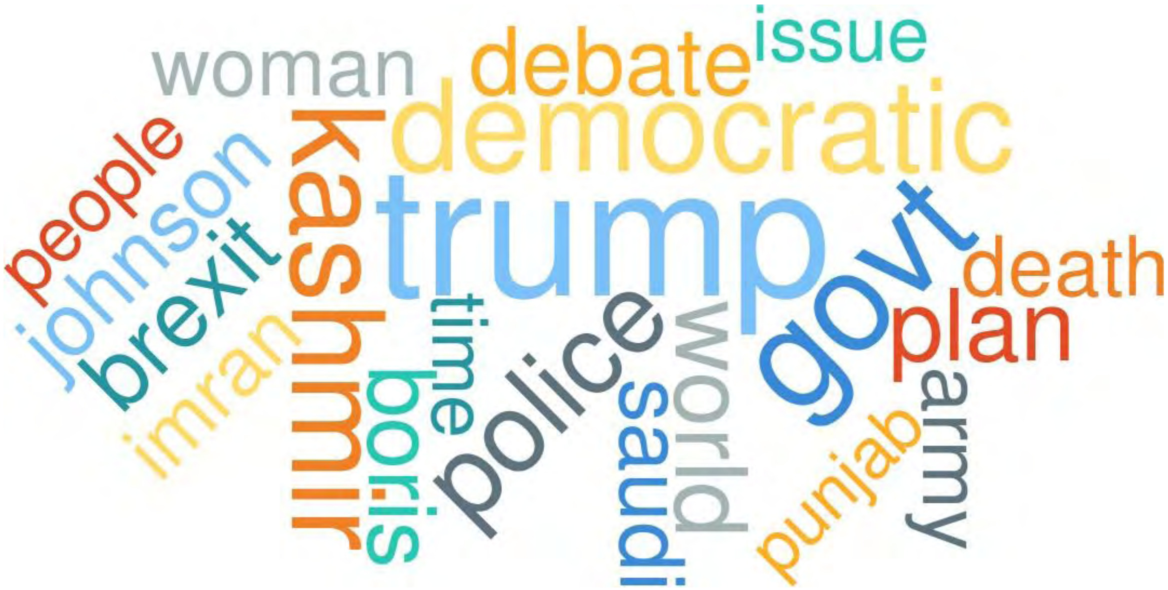
The Nation | 2019-09-12

QAU Islamabad ranked in top 500 of World University Rankings

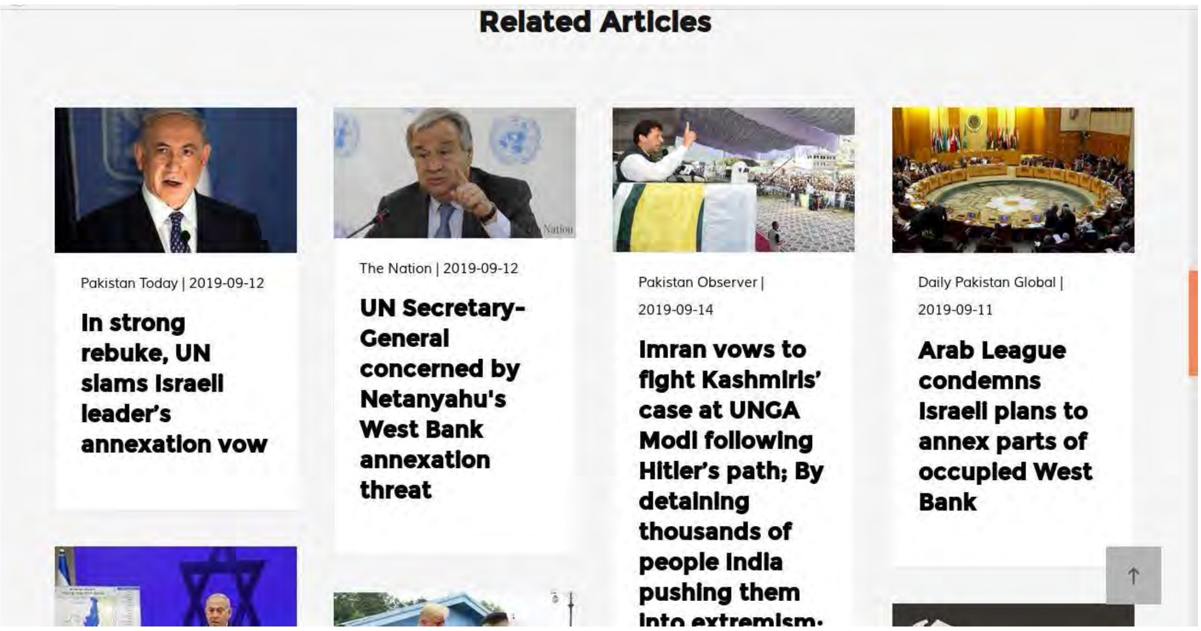
The Guardians | 2019-09-11

Yellowhammer: no-deal chaos fears as secret Brexit papers published

Interface 7: Popular Keyword Search



Interface 8: Related Article



Related Articles

Pakistan Today | 2019-09-12

In strong rebuke, UN slams Israeli leader's annexation vow

The Nation | 2019-09-12

UN Secretary-General concerned by Netanyahu's West Bank annexation threat

Pakistan Observer | 2019-09-14

Imran vows to fight Kashmiris' case at UNGA Modi following Hitler's path; By detaining thousands of people India pushing them into extremism:

Daily Pakistan Global | 2019-09-11

Arab League condemns Israeli plans to annex parts of occupied West Bank

Chapter # 4
Software Test Document

This chapter explains the software testing process. It further elaborates the acceptance test cases which are used to test the functional and non-functional requirements after the development of the software.

4.1 Introduction

Software test document involves the documentation of objects that should be developed before or during the testing of software. Software testing is the process of assessing a system or its components with the intent to find whether it satisfies the specified requirements or not.

4.1.1 Test Approach

Manual testing includes testing software manually without using any automated tool or any script. The tester takes over the role of an end-user and tests the software to identify any unexpected behavior or bug. Here in this work, the tester is admin. There are different stages for manual testing such as unit testing, system testing, and user acceptance testing. Admin only develop acceptance test plans, acceptance test cases, or acceptance test scenarios to test software to ensure the reliability of the system.

Test-first development is an approach to development where tests are written before the code to be tested. Small code changes are made and the code is refactored until all tests execute successfully.

4.2 Test Plan

Test planning is an activity that ensures that there is initially a list of tasks and milestones in a baseline plan to track the progress of the project. Test plan determines the scope and the risks that need to be tested and are not to be tested. Deciding fail and pass criteria.

4.2.1 Features to be tested

All features of the system which were defined in the software requirement specifications need to be tested.

- News articles related to particular date are displayed successfully.
- News articles of a specific author are displayed successfully.
- News articles of a specific newspaper are displayed successfully.
- Most frequent keywords in news title of past week are extracted successfully.

- Keyword based searching is displaying news articles successfully.
- News articles related to popular keywords are displayed successfully.
- On clicking of an article, its content, news source and date are shown successfully.

4.2.2 Testing Tools and Environments

A testing environment is a setup of software and hardware on which testing of the newly built product is performed. This consists of the physical setup which includes computer system which have windows operating system, minimum 2 GB of RAM, and minimum 100 GB of hard drive. The developed application is properly connected with the logical database system.

4.3 Test Cases

A test case is a document, which has a set of test data, preconditions, expected results, and post conditions, developed for a test scenario in order to verify compliance against a specific requirement.

4.3.1 Browse by Date

Table 10 Test Case for Browse by Date

ID	T1
Description	News articles of the date selected are displayed
Tester	User
Setup	1. User opens the application 2. Go to Search by Date option
Instructions:	1. Selects date from drop down: 05-08-2019 2. Clicks on Submit Query button
Expected Results	Shows news articles of that date.
Verdict	Passed

4.3.2 Browse by Author’s name

Table 11 Test Case for Browse by Author’s name

ID	T2
Description	News articles of the author name selected are shown
Tester	User
Setup	1. User opens the application 2. Go to Search by Author name option
Instructions:	3. Enter author‟s name and selects it from drop down: Seerat Shehzad 4. Presses Enter
Expected Results	News articles related to that author‟s name are displayed.
Verdict	Passed.

4.3.3 Search by Newspaper name

Table 12 Test Case for Searching by Newspaper name

ID	T3
Description	News articles of the Newspaper selected are shown
Tester	User
Setup	1. User opens the application 2. Go to Search by Newspaper option
Instructions:	1. Select Newspaper name from the drop down list. : Dawn 2. Press Enter button.
Expected Results	News articles of the newspaper selected are displayed.
Verdict	Passed.

4.3.4 Advanced Keyword Searching

Table 13 Test Case for Advanced Keyword Searching

ID	T4
Description	News articles related to keywords entered are shown
Tester	User
Setup	1. User opens the application 2. Go to the Search option
Instructions:	1. Enter Keywords without enclosing in quotations : Kashmir Pakistan 2. Press Enter 3. Enter a phrase enclosed in quotations : “Imran Khan and Trump” 4. Press Enter 5. Enter keywords with minus sign. : Kashmir –India 6. Press Enter
Expected Results	a. For 1, 2: All news articles containing words Kashmir or Pakistan in will be displayed. b. For 3, 4: All news articles containing the phrase “Imran Khan and Trump” at least once would only be shown. c. For 5 & 6: All news articles containing the keyword “Kashmir” but not “India” its title or content.
Verdict	Passed.

4.3.5 View Single Article

Table 14 Test Case for Viewing Single Article

ID	T5
Description	Single article with content shown
Tester	User
Setup	1. User opens the application 2. News articles are shown
Instructions:	1. User clicks on some news article‟s heading
Expected Results	News article clicked is shown with its content, date, URL and other related articles if any.
Verdict	Passed.

4.3.5 Get Popular Keywords

Table 15 Test Case for Getting popular keywords

ID	T6
Description	User views popular (most frequent) keywords appeared in the title of news articles
Tester	User
Setup	1. User opens the application.
Instructions:	2. User clicks on Popular option.
Expected Results	The most frequent keywords appeared in the title section in the past week are displayed.
Verdict	Passed.

4.3.6 View Popular News articles of the week

Table 16 Test Case for Search News by City

ID	T6
Description	User views Popular News Articles of the week
Tester	User
Setup	1. User opens the application.
Instructions:	1. User clicks on Popular option. 2. User clicks on some keyword.
Expected Results	Displays news articles related to that popular keyword.
Verdict	Passed.

4.4 Overview

This chapter has provided the description of software testing of the system. It has elaborated the test case approach, test plan, and test cases. The next chapter further explained conclusion and future enhancements in the system.

Chapter # 5
Conclusion and Future Enhancements

This document describes the project conclusions and future enhancements i.e. what type of new features can be added with time.

5.1 Conclusion

It has been a matter of immense pleasure, honor and challenge to have this opportunity to take up this project and complete it successfully. During the development process, I studied carefully and understood the criteria for making a software more demanding.

NEWSER was intended to build on purpose of saving news readers time yet providing them with latest news from across different local and international newspaper at one platform where they can search news easily based on different criterion. They are given the advanced search option so that they would not have to see through all newspapers finding one of their choice. Furthermore, they can get the popular news of the week. They can search news by Date, Author's name, Newspaper name etc. They can get the related articles of a particular article to know different newspapers' opinion on an incident. All these features are designed to save readers time and keeping him engaged in reading without interruption.

5.2 Future Enhancements

There could be quite a few enhancements in the NEWSER, which could make it even more desiring and useful application. Some of such enhancements are as follows:

i. A location map feature which could automatically detect user's location and shows news according to that location.

ii. User account feature which could show tailored selection of news according to reader's interest and history.

iii. An android/IOS application for NEWSER will make it more easily accessible to users.