NavigateTheNewsLandscape

# Introduction

Anewsappisasoftware-baseddatabasethatprovidesnews,videos,andupdatesona user’sdevice.Newsappscanbeusedtoaccesslocal,national,andinternationalnews,as well as entertainment, science, and politics.

# ProjectTitle:

**InsightStream:NavigatetheNewsLandscape**

# TeamMembers:

TeamLeader: CHARAN M **[Email id:** [mcharansaran4@gmail.com](mailto:mcharansaran4@gmail.com)**]**

TeamMember: ARUNPANDIAN I **[Email id:** [veerapandiyan596@gmail.com](mailto:veerapandiyan596@gmail.com)]

TeamMember: THULASIRAMAN R **[Email id:** [thulasraman0@gmail.com](mailto:thulasraman0@gmail.com)]

TeamMember: BHARATH J **[Email id:** [lifetravellerksm001@gmail.com](mailto:lifetravellerksm001@gmail.com)]

# ProjectOverview

**\***Purpose:

Businessesdonotoperateinavacuum.Theyneedtointeractwithcustomers,vendors, and partnerswhilecompeting directlywithcompetitors.Together,theseinteractionsforma competitivelandscape.

Byproactivelylookingfornegativenewsintheircompetitivelandscapecompaniescan makestrategicdecisionsand strengthentheiroperationsagainst potentialrisks.

# \*Features

* 1. **SeamlessIntegration**

Newscontentblendsnaturallyintoplatforms(socialmedia,searchengines,news aggregators).

* 1. **AI-drivenPersonalization**

Newsiscuratedbasedonuserbehaviorandpreferences.

* 1. **Mobile-firstExperience**

Optimizedforsmartphoneswithfast-loading formats(AMP,InstantArticles).

* 1. **NativeAdvertisingsSponsoredContent**

Adsappearasnewsstorieswithout disruptinguserexperience.

* 1. **Multimedia-richContent**

Includesvideos,podcasts,infographics,and liveupdates.

# Architechture

* 1. **ContentCreationsPublishingLayer**

NewsSources:Traditionalmedia(CNN,BBC),digital-firstpublishers(BuzzFeed,Vox),and independent journalists.

**Formats:Articles,videos,podcasts,infographics,livestreams.**

PublishingPlatforms:CMS(WordPress,Medium),socialmedia(Facebook,X,TikTok),news aggregators (Google News, Apple News).

* 1. **ContentDistributionLayer**

SocialMediaPlatforms:Facebook,X,LinkedIn,Redditdistributenewsnatively.

NewsAggregatorsCApps:GoogleNews,Flipboard,AppleNewspersonalizecontentfeeds. SearchEngineIndexing:Google,BingoptimizenewsvisibilityviaSEOCAI-drivenranking.

* 1. **PersonalizationsAILayer**

RecommendationEngines:AIcuratesnewsbasedonuserbehavior,location,and interests.

MachineLearningAlgorithms:Predictstrendingtopicsanduserengagement. Real-time Updates: Push notifications and live news feeds.

* 1. **MonetizationsAdvertisingLayer**

NativeAdsCSponsoredContent:Blendsadsintoeditorialcontent(e.g.,brandedarticles). SubscriptionCPaywallModels:Premiumnewsaccess(e.g.,NYT,TheWashingtonPost).

AffiliateCMembershipModels:Someplatformsrelyondonationsormemberships(e.g., Patreon, Substack).

* 1. **Fact-checkingsModerationLayer**

AI-poweredMisinformationDetection:Automatedtoolsflagfakenews.

HumanModeration:Fact-checkingorganizations(e.g.,Snopes,ReutersFactCheck)verify claims.

Community-basedVerification:PlatformslikeRedditallowusermoderationandfact- checking.

* 1. **UserInteractionsEngagementLayer**

CommentsCDiscussions:Userscanengageviacomments,likes,andshares.

LiveCInteractiveFeatures:QCAsessions,polls,andreal-timediscussions(e.g.,Twitter Spaces, YouTube Live).

Cross-platformSharing:Newscanbesharedacrossappsanddevices.

4.SetupInstructions**Prerequisites**

* **Node.js(v16orhigher)**
* **npm(v8orhigher)**
* **Git**

**1.** ChoosetheTechnology Stack **Frontend (User Interface)** Frameworks: React.js, Next.js **Backend(DataProcessingsAPI)**

Languages:Python(Django,Flask),Node.js(Express.js).

Databases:PostgreSQL,MongoDB(fornewsstorage).

**HostingsDeployment**

CloudServices:AWS,GoogleCloud,DigitalOcean. CI/CD: GitHub Actions, Docker, Kubernetes.

**SetUpDatabase(MongoDB/PostgreSQL)**

CreateadatabaseinMongoDBAtlasorPostgreSQL. Definenewsschema(title,content,source,timestamp).

# Installation**:**

**1.ManualInstallation(Step-by-StepSetup)[Recommended]**

Thismethodinvolvesinstallingalldependenciesmanuallyandsettinguptheprojectfrom scratch.

**Steps**

**Install Required Software** Install Node.js (Download) InstallMongoDB(Download) InstallVSCode(Download)

# FolderStructure

Awell-structured foldersystem helpsmaintain scalability, readability, and easy maintenance.BelowistherecommendedfolderstructureforaNativeNewsLandscape ProjectwithReact(frontend)andNode.js+Express(backend).

**Backend:**

server.js→StartstheExpressserver. db.js → Connects to MongoDB. newsRoutes.js→DefinesAPIendpoints.

newsController.js→Handleslogicforfetchingandstoringnews.

**Frontend:**

NewsList.js→Fetchesanddisplaysnewsfromthebackend. newsApi.js → Handles API requests.

App.js→MainUIstructure.

# RunningTheApplication:

**Frontend:**

**\***Tostartthefrontendserver,runthefollowingcommandintheclientdirectory:npmstart

**\***npminstall

**\***npxjson-server./db/db.json

**\***npmrundev

**\***Theapplicationwillbeavailableat[http://localhost:3000](http://localhost:3000/)

# ComponentDocument:

**KeyComponents Newslist.js(**DisplayNewsArticles)

📌**Purpose**:Fetchesanddisplaysmultiplenewsarticles.

📌**Location**:src/components/NewsList.js

**2.NewsItem.js(SingleNewsArticleComponent)**

’)c

**Purpose:**Displaysasinglenewsarticle.

’)c **Location:**src/components/NewsItem.js

**3.Navbar.js(NavigationComponent)** ’)c**Purpose:**Providesnavigationlinks. c’)**Location:**src/components/Navbar.js

**ReusableComponents:**

1. **Button.js(ReusableComponent)**

’)c**Purpose**:Areusablebuttonfordifferentactions.

)’c**Location**:src/components/Button.js

1. **SearchBar.js**(SearchInputComponent)

’)c**Purpose**:Allowsuserstosearchfornewsarticles.

’)c **Location**:src/components/SearchBar.js

1. **Modal.js**(ReusableModal/Popup)

c’)

**Purpose**:Displaysapop-upmessage.

’c)**Location**:src/components/Modal.js

# StateManagement:

**\*GlobalState:**

Thechoiceofstatemanagementdependsonthetechstack:

**Flutter**:Riverpod,Provider,Bloc,orGetX

**ReactNative**:Redux,Recoil,Zustand,orContextAPI

**Swift(iOS)**:Combine,SwiftUIState,orReduxforSwift

**Kotlin**(Android):JetpackCompose+ViewModel,LiveData,orFlow

**Android**(Kotlin/JetpackCompose)

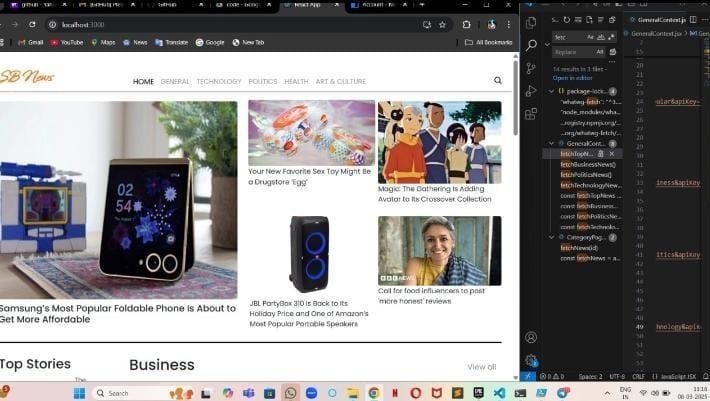
**StateHoisting**→Liftstateuptoaparentcomposable.

**MutableState**/remember→StorelocalUIstate.

ViewModel+LiveData/StateFlow→Ifstateneedstosurviveconfigurationchanges.

**RoomDatabase**→Forlocalcaching.

# Screenshots:





Stylish

[3/11,2:50PM]+919361272472:1.GeneralStyling(BaseCSSforConsistency)

[3/11,2:50PM]+919361272472:2.HeaderCNavigation(TopBarStyling)

[3/11,2:50PM]+919361272472:3.NewsCards(MainArticleStyling)

[3/11,2:51PM]+919361272472:4.HeadlinesCBreakingNews(Attention-Grabbing Styling)

[3/11,2:51PM]+919361272472:5.Footer(CopyrightCLinks)

[3/11,2:54PM]+919361272472:Theme:1.ClassicNewsTheme–Usesanewspaper-style layoutwithseriffonts,ablack-and-whitecolorscheme,andamulti-columnformatfora professionallook. (Example: TheNew YorkTimes)

ModernDigitalNewsTheme–Featuresasleek,interactivedesignwithdarkmode,card- basedlayouts,andanimatedelementsforafuturisticfeel.(Example:CNN,TheVerge)

MinimalistNewsTheme–Focusesonclean,fast-loadingcontent,softcolors,andsimple typographytoenhancereadabilityandspeed.(Example: Medium,Axios)

BreakingNewsTheme–Designedforreal-timeupdateswithboldheadlines,livetickers, and red-blackcolorschemestocreateurgency. (Example: Reuters,ESPN)

# Testing:

Forasoftwaretestingminiproject,youcanconsidertopicslike:automatedticket booking,abasicbugtracker,alibrarymanagementsystem,usabilitytestingofa simplewebsite,e-commercewebsitetesting,weatherapptesting,securitytesting ofaloginsystem,and exploringAgiletestingmethodologieswithasmall application.

Keyareastofocuson:

FunctionalTesting:

Simplecalculatorapplicationtesting To-do list app functionality testing Basiclogin/registrationformtesting Usability Testing:

Navigationflowonasmalle-commercesite User interface testing for a mobile app Form validation testing on a contact page PerformanceTesting:

Loadtestingasimplewebpage

ResponsetimeanalysisofanAPIendpoint Regression Testing:

Testingupdatestoasmallapplication Verifyingexistingfeaturesaftercodechanges AutomationTesting:

Creatingautomatedtestscriptsforasimplewebform Using Selenium to automate UI interactions

Testing

* TestingStrategy:

OUnitTesting:UsingJestandReactTestingLibrary.

OIntegrationTesting:IsperformedtoensurethatcomponentsworktogetherAsexpected. OEnd-to-EndTesting:Cypressisusedforend-to-endtestingofuserflows.

* + CodeCoverage:

OCodecoverageismonitoredusingJest’sbuiltincoveragetool.Thecurrent Coverage is 85%.

# ScreenshotssDemo:

\***Demo videoLink:**

<https://drive.google.com/file/d/1-itXqmByaNhZMdHyVsYy3V4b5_YW4Ipy/view?usp=drivesdk>

\*Demo Code Link: <https://github.com/charan-0112/insight-stream>

**\*Screenshots:seeselectionGforul**

# KnownUsess:

PerformancesLoadTimeIssues

**PerformancesLoadTimeIssues**

**Newswebsitesoftencontainhigh-resolutionimages,videos,andliveupdates,which can slow down performance.**

**Solution:Uselazyloading,optimizemediafiles,andimplementefficientcaching techniques.**

**ContentCredibilitysMisinformation**

**Managingfakenewsandbiasedreportingisachallenge,asmisinformationcan spread quickly.**

**Solution:Implementfact-checkingmechanisms,usetrustedsources,andhighlight verified content with badges.**

**FeatureEnhancement:**

**1.AI-PoweredNewsRecommendations**

**Implementmachinelearningtopersonalizenewsfeedsbasedonuserinterestsand reading history.**

**VoicesAudioIntegration**

**Addtext-to-speechfunctionalityforuserswhopreferlisteningtonewsinsteadof reading.**

**AugmentedReality(AR)News**

**UseARtoprovideinteractivenewsexperiences,suchas3Dvisualizationsofmajor events.**

**BlockchainforNewsVerification**

**Utilizeblockchaintotrackandverifysources,preventingthespreadof misinformation.**

ThisDocumentprovidesacomprehensiveoverviewoftheNavigatetheNewsLandscape (ReactApplication)projectincludingitsarchitecture,setupinstructions,andfutureplan