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**]**

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2.ProjectOverview

*****Purpose:

Businessesdonotoperateinavacuum.Theyneedtointeractwithcustomers,vendors, and

partnerswhilecompeting directlywithcompetitors.Together,theseinteractionsforma competitivelandscape.

Byproactivelylookingfornegativenewsintheircompetitivelandscapecompaniescan makestrategicdecisionsand strengthentheiroperationsagainst potentialrisks.

*Features

1. **SeamlessIntegration**

Newscontentblendsnaturallyintoplatforms(socialmedia,searchengines,news aggregators).

2. **AI-drivenPersonalization**

Newsiscuratedbasedonuserbehaviorandpreferences.

3. **Mobile-firstExperience**

Optimizedforsmartphoneswithfast-loading formats(AMP,InstantArticles).

4. **NativeAdvertisingsSponsoredContent**

Adsappearasnewsstorieswithout disruptinguserexperience.

5. **Multimedia-richContent**

Includesvideos,podcasts,infographics,and liveupdates.

2. 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).

2. **ContentDistributionLayer**

SocialMediaPlatforms:Facebook,X,LinkedIn,Redditdistributenewsnatively.

NewsAggregatorsCApps:GoogleNews,Flipboard,AppleNewspersonalizecontentfeeds.

SearchEngineIndexing:Google,Bingoptimizenewsvisibilityvia SEOCAI-drivenranking.

3. **PersonalizationsAlLayer**

RecommendationEngines:AIcuratesnewsbasedonuserbehavior,location,and interests.

MachineLearningAlgorithms:Predictstrendingtopicsanduserengagement.

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

4. **MonetizationsAdvertisingLayer**

NativeAdsCSponsoredContent:Blendsadsintoeditorialcontent(e.g.,brandedarticles).

SubscriptionCPaywallModels:Premiumnewsaccess(e.g.,NYT,TheWashingtonPost).

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

5. **Fact-checkingsModerationLayer**

AI-poweredMisinformationDetection:Automatedtoolsflagfakenews.

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

Community-basedVerification:PlatformslikeRedditallowusermoderationandfact- checking.

6. **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

*Theapplicationwillbeavailableathttp://localhost:3000

ComponentDocument:

KeyComponents

Newslist.js(DisplayNewsArticles)

📌**Purpose**:Fetchesanddisplaysmultiplenewsarticles.

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

2.NewsItem.js(SingleNewsArticleComponent)

Purpose: Displaysasinglenewsarticle.

Location:src/components/NewsItem.js

3.Navbar.js(NavigationComponent)

Purpose: Providesnavigationlinks.

Location:src/components/Navbar.js

ReusableComponents:

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

Purpose:Areusablebuttonfordifferentactions.

Location:src/components/Button.js

2. **SearchBar.js**(SearchInputComponent)

Purpose:Allowsuserstosearchfornewsarticles.

Location:src/components/SearchBar.js

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

Purpose:Displaysapop-upmessage.

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)

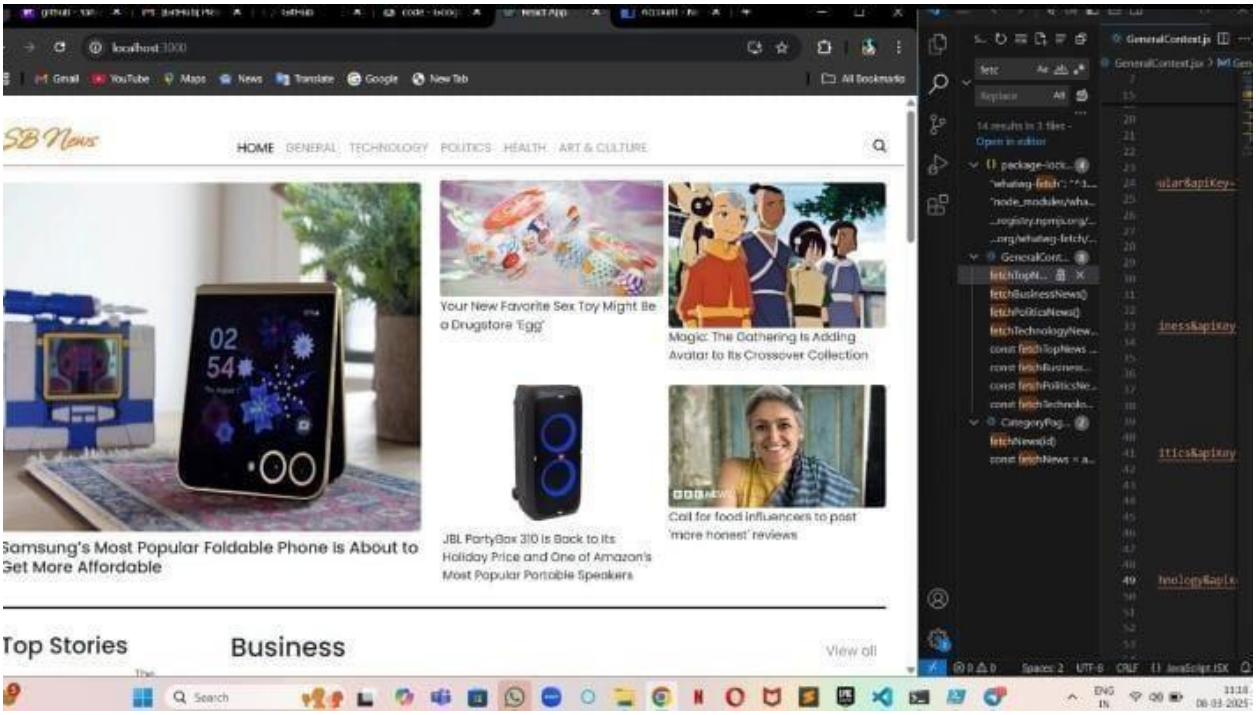
StateHoisting→Liftstateuptoaparentcomposable.

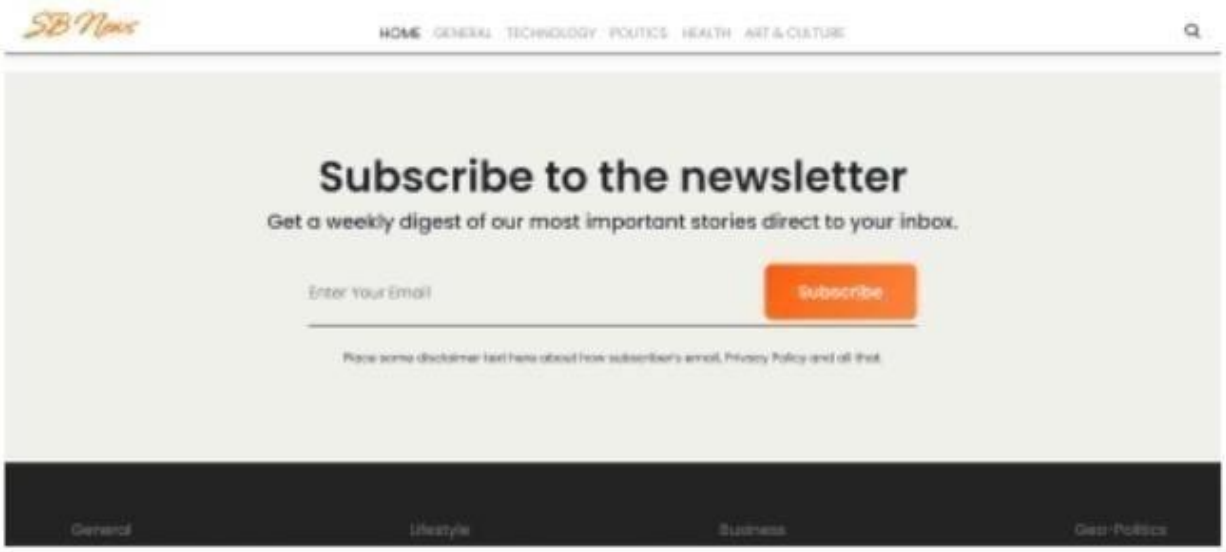
MutableState/remember→StorelocalUIstate.

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:Isperformedtoensurethatcomponentsworktogether Asexpected. 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