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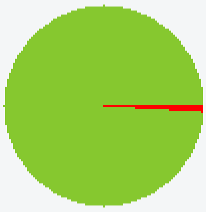

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AI CHATBOT for Agriculture IN RASAA Project ReportSubmitted in Partial Fulfillment of the Requirementfor the Award of the DegreeofBACHELOR OF TECHNOLOGY(Computer Science and Engineering)ToByKuluru Vineeth Kumar Reddy REG NO:18BCS043Karthick P SREG NO:18BCS038LaxmiNarayana K REGNO:18BCS037Under the Guidance ofDr. Uma SeshadriDEPARTMENT OF COMPUTER SCIENCEIIIT, DharwadAPR-20211 CANDIDATE’S DECLARATIONWeherebycertifythattheworkwhichisbeingpresentedintheprojectreportentitled“AICHATBOTforAgricultureINRASA”inpartialfulfillmentoftherequirementfortheawardoftheDegreeofBachelorofTechnologyandsubmittedtotheDepartmentofComputerScienceofIndianInstituteofInformationTechnologyDharwad,isanauthenticrecordofourownworkcarriedoutduringaperiodfromFebruary2021toApril2021underthesupervisionofDr. UmaSeshadri,DepartmentofComputerScienceandTechnology,IndianInstituteofInformationTechnology, Dharwad.Thematterpresentedinthisreporthasnotbeensubmittedbyusfortheawardofanyotherdegree of this or another Institute/University.Kuluru Vineeth Kumar ReddyKarthick P SLaxminarayana KThis is to certify that the above declaration made bythe candidate is accurate tothe exceptional of my knowledge.Date:Dr. Uma Seshadri---2 ACKNOWLEDGEMENTSItisindeedagreatpleasuretoexpressoursincerethankstooursupervisorDr. UmaSeshadri,DepartmentofComputerScienceandEngineering,IIITDharwadforhercontinuoussupportinthisproject.Shewasalwaystheretolisten,adviseandshareherexpertisewithusateverystageoftheproje

ctdevelopment.Sheshowedusdifferentwaystoapproacharealworldproblemandtheneedtobepersistent toaccomplishanygoal.Shehadconfidenceinuswhenwehaddoubtedourselves,andbroughtoutthegoodideasinus.Shewasalwaystheretomeetandtalkaboutourideas,shareherexpertiseandviewsondevelopingasolidprototype,andtoaskusgoodquestionstohelpusthinkthroughourproblems.Withoutherencouragementandconstantguidance, we couldn't have finished this projecton time.Wearealsoindebtedtoourownteammembersfortheirrigorouseffortsinquestioningthemostdifficultedgecasesandextractingthebestoutofitandalsofortheirpersistentcoordinationtilltheend. Withouttheirsupportandcooperation,thisprojectcouldnothavebeen finished.Kuluru Vineeth Kumar ReddyKarthick P SLaxminarayana K3 CONTENTSPage No.4 Phase-1INTRODUCTION1.1 ABSTRACTChatbotsarecomputerprogramsthatsimulatehumanconversationthroughvoicecommands ortextchatsorboth.Chatbot,shortforchatterbot,isanartificialintelligence(AI)featurethatcanbe embedded and used via any foremost messaging applications.Thegoalofthisprojectistobuildaprototypeofan AIchatbottoaddresstheproblemsfaced through farmers in numerous levels of the agriculturalsector.OurAIchatbothasfeaturesrangingfromprovidingtheinformationoffertilizerconsumptionstatewise,educatingthefarmersabouttheMSPratesintheirrespectivestates(foralimitedcropvarieties),acknowledgingthemtousespecificfertilizervarietiestoreducetheirinitialinvestmentandsuggestforpropercropstobegrownbasedonthefeatureslikenutrientcontentofsoilafterhavinggonethroughsoiltesting(ex:N,P,Kvaluesofsoil),liveweatherdetailsoftheirresidinglocation(ex:temperature,humidity,rainfall). Thechatbotalsoprovidestheserecommendationstothefarmerinhisnativelanguage(fordemonstrationwehaveusedkannada).OurchatbotisbuiltexclusivelyusingRASA,anopensourceMachineLearningframeworkwhichusestheRASANLUforunderstandingtheuserintentsandRASACoretopredictthebest viable movement as a reaction from the chatbotbased on a probabilistic version.

ThechatbotusesthepubliclyavailableAPIsfromvariousgovernmentportalsandpubliclyavailabledatasetsfromopensourcecommunitieslikeKaggletoaccesstheinformationrequired.Theprojectalsomakesuseoftechniquessuchasinputfeatureextractionfromtherawdatacollected,whichisfeededasaninputtothepredictiveMachineLearningmodel.Italsousesthedifferentdatasetsfromtheseportalstomakeuseofthemfortraininganmlmodelfor crop advice.five Phase-2RASA and RASA X2.1Introduction to RASAWhat are contextual assistants?●Abletounderstandthecontextoftheconversation,i.e.whattheuserhassaidpreviouslyand while/in which/how they stated it.●Capable of knowledge and responding to differentand sudden inputs.●Canlearnfrompreviousconversationsandimproveinaccuracyovertime Buildabletoday with Rasa.Exploring RasaRasa has 3 foremost additives that paintings togetherto create contextual assistants:Rasa NLU:RasaNLUislikethe“ear”ofyourassistant—ithelpsyourassistantunderstandwhat’sbeingsaid. RasaNLUtakesuserinputintheformofunstructuredhumanlanguageandextractsstructured statistics withinside the shape of intents and entities.●Intentsarelabelsthatrepresentthegoal,ormeaning,ofauser’sspecificinput.Forexample,themessage‘Hello’couldhavethelabel‘greet’becausethemeaningofthismessage is a greeting.●Entitiesareimportantkeywordsthatanassistantshouldtakenoteof.Forexample,themessage‘MynameisJuste’hasthename‘Juste’init.Anassistantshouldextractthename and consider it for the duration of the communique tokeep the interplay herbal.1.Entityextractionisachievedbytraininganamedentityrecognitionmodeltoidentifyandextracttheentities(inthisexample, names) for unstructured person messages10 Rasa Core:CoreisRasa’sdialoguemanagementcomponent. Itdecideshowanassistantshouldrespondbased on:1) The country of the communique and2)Thecontext.RasaCorelearnsbyobservingpatternsinconversationaldatabetweenusersand an assistant.Rasa X:RasaXisatoolsetfordeveloperstobuild,improveanddeploycontextualassistantswiththeRasa framework. You can use Rasa X to:-View and annotate conversations-Get comments from testers-Version and control modelsWithRasaX,youcanshareyourassistantwithrealusersandcollecttheconversationstheyhavewiththeassistant,allowingyoutoimproveyourassistantwithoutinterruptingtheassistantrunning in production2. 2 Generating the NLU schooling statistics(intents and entities)ThemoodbotstarterprojectcontainsaDatadirectory,wherewewillbeabletofindthetrainingdata documents for NLU and speak control fashions. The Data listing includes documents:●nlu.mdthefilecontainingNLUmodeltrainingexamples.Thisincludesintents,whichareusergoals,andexampleutterancesthatrepresentthoseintents.TheNLUtrainingdataalsolabelstheentities,orimportantkeywords,theassistantshouldextractfromtheexample utterance.1.Intentsaredefinedusingadoublehashtag.Eachintentisfollowedbymultipleexamples of ways a person may specific that intent.eleven 2.Entitiesarelabeledwithsquarebracketsandtaggedwiththeirtypeinparentheses.(screenshot of entities through laxy)12 ●stories.md- the report containing tale statistics. Storiesare instance give up-to-give up conversations13 Rulesareatypeoftrainingdatausedtotrainyourassistantsdialoguemanagementmodel.Rules describe quick portions of conversations thatshould usually observe the identical path.PRE-CONFIGURED RASA PIPELINES:Key Concepts●NLUmodel-AnNLUmodelisusedtoextractmeaningfromtextinput.TraininganNLUmodelonthisdataallowsthemodeltomakepredictionsabouttheintentsandentitiesinnewusermessages,evenwhenthemessagedoesn’tmatchanyoftheexamples the version has visible before. ●Trainingpipeline-NLUmodelsarecreatedbyatrainingpipeline,alsoreferredtoasaprocessingpipeline.Atrainingpipelineisasequenceofprocessingstepswhichallowthe version to examine the schooling statistics’s underlyingpatterns.●Wordembeddings-Wordembeddingsconvertwordstovectors,ordensenumericrepresentationsbasedonmultipledimensions.Similarwordsarerepresentedbysimilarvectors,whichallowsthetechniquetocapturetheirmeaning.Wordembeddingsareusedbythetrainingpipelinecomponentstomaketextdataunderstandabletothemachinelearning version.14 Rasa comes with default, pre-configured pipelines1.Pretrained_embeddings_spacy:UsesthespaCylibrarytoloadpre-trainedlanguagemodels, which can be used to symbolize every phrase in theuser’s enter as phrase embeddings.2.Supervised_embeddings:Unlikepre-trainedembeddings,thesupervised_embeddingspipelinetrainsthemodelfromscratchusingthedataprovidedintheNLUtrainingdatafile.15 2.3Domain,Custom movements and slotsDomain File in Rasa:ThedomainisanessentialcomponentofaRasadialoguemanagementmodel.Itdefinestheenvironment wherein the assistant operates, such as:●What the person means: specifically, what intents andentities the version can understand.●What responses the version can offer: including utterancesor custom movements.●●What to mention next: what the version must be prepared torespond with.●Whatinfotoremember:whatinformationanassistantshouldrememberandusethroughout the communique.sixteen 17

Actions:Thesectioncalledactionsshouldcontainthelistofallutterancesandcustomactionsanassistantshouldusetorespondtouser’sinputs.Theseshouldcomefromyourstoriesdatainthestories.md report.Custom Actions in Rasa:Addingresponsetemplatesdirectlytothedomainfileistheeasiestwaytodefinethemessageanassistantsendstheuseronceaspecificutteranceispredicted.Butthereisanotherwaytoachievethesameresult-bycreatingcustomactions.Customactionsareresponseactionswhichincludecustomcode.Thatcustomcodecandefineanythingfromasimpletextresponsetoabackendintegration-anAPIcall,connectingtothedatabase,oranythingelseyourassistant wishes to do.Customactionsaredefinedinafilecalledactions.py,containingpythoncode,asthefileextension suggests●trackerkeepstrackofwhathappensateachpointwithinadialogue-whatintentswerepredicted, which entities in which extracted, as wellas different records●dispatcheris the detail that sends the responseback to the person(screenshots of custom movements)18 Slots in Rasa:Anotherimportantelementofthedomainfile-veryimportantfordialoguemanagementinRasa-isslots.

Slotsfunctionastheassistant’smemory,andareusedbyyourassistanttorememberimportantdetailsthroughouttheconversationandapplythosedetailsincontexttodrivetheconversation.Slotsactasakey-valuepairtostoreinformationcriticaltotheconversationwiththeuser.Thisinformationcanbeprovidedbytheuser(e.g.,entityvaluesextractedbytheNLUmodel)orgatheredfromoutsidetheconversation(e.g.,resultsextractedfrom the outside database).19 2.4:RASA XWhat is Rasa X?RasaXisaUItoolfordevelopers,usedtoimproveassistantsbuiltwithRasaOpenSource.It’sintended to remedy issues:●First, to make it less complicated to leverage actual conversationsas schooling statistics.●Second, to offer a manner to check beyond conversationsfor styles or errors20 21 Phase-3Problem identity and its significance3.1Problem identity and challengesTheshareofagricultureinGDPbeingclosetoaround20percentin2020-21,andalsowiththegenerationschanging,theshortageofpeoplepractisingagricultureexponentiallydeclining,economicallyspeaking“lesssupplymoredemand”urgedourstrongguttobelievethisisthefuturetrendingfieldmaybe5fromnowor10yearstobeoptimistic,thisallvitalpointstriggeredtheteamtoworkontheimportantphasesofagriculturetoimprovethefarmersproduce, as a result assisting each the farmers as nicely asthe kingdom to prosper.

Afterrigorousresearchandanalysis,themainchallengesthatwereidentifiedtobeofutmostimportanceforthefarmerswastofindsolutionsinthedomainsofsellingtheiragriculturalproduceforreasonableprices,efficientfertilizerusageforcropsandpropercropstobegrownin their fields to get most produce. Butthetasktobedoneisnotassimpleasitlooks(“Easiersaidthandone”),herearethemajor demanding situations to be appeared upon:●Lackofproperandstructuredtrainingdata:Nowtheproblemhereliesinthefactthatmostofthedata collectedfromthegovernmentportalsarerawdata. Hence,nowtotrainourmodelforthecroprecommendation,weneedtofiltertheimportantfeaturevectorsto beusedandapplythetechniquessuchasmeannormalizationtomaketheMLmodel obtain a globally optimized answer.

●LimitedAPIaccesstogovernmentdata:ThesecondchallengethatwasfacedbytheteamwasthatonlyalimiteddatasetsfromthegovernmentportalswereallowedaccessforpublicAPIcalls.Alsogettingaccesstorealworlddata,whichislikeanimportantassetthesedaysisexpensivesincetheworldisonthevergeofcutting-edgetechnologies.So,itisreallyhardtogatherthedatathatwearebadlyinneedofduetoconstraints like cost,privacy,credibility and othervaluable concerns.22

●TheverynewRASAframework:AlthoughRASAisapowerfulMachineLearningframeworktobuildcomplexmodels,itwasveryrecentandnew(foundin2016),hencenoneofourteammembersknewabouthowtocodeandalsoaboutitsfeatures. Hencetheteamhadtocompletelyunderstandthetechnologyfromscratch.Theteamalsostruggledalottofindsolutionsforerrorsduetoverylessresourcesavailableonlineaswellasduetolesscommunitymembersavailablefortheframeworktodiscusstheissues.●Problemofdeployment:Anyprojectbecomescompleted onlywhenitreachesthepublictoexperimentwithitandalsohelpthedevelopmentteamtoimprovethefeaturesofthechatbot.Animportantissuefacedbytheteamatthisstagewasthatmostoftheonlineresourcesand RASAcommunitydeployedthemodelonGCP,butwewereunabletoaccessitbecauseofitshardpoliciesoncreditcard(beingstudents,reallyhardtopossesscreditcardssincenosourceofincome),thisproblemcompelledtheteamtomigratetoAWS,wherethereferencesorresourcestodeployRASAX-SERVERwasnotevenavailableontheofficialrasadocumentationaswellandonotherside,scarcityofbeing charged closely restrained our scope of experimentation.three. 2Requirements and specificationsHardware & OS Requirements:Here are the minimal and endorsed hardware specsand OS requirements:Install scriptManual installationOperating SystemUbuntu16.04/18.04/19. 10Debian9/10 CentOS 7 / eight RHEL 8amodernLinuxorWindowsdistributionthatcanrunDockervCPUsMinimum:2vCPUsRecommended:2-6 vCPUs23 RAMMinimum:4GBRAMRecommended:8GB RAMDisk SpaceRecommended:100GBdiskspaceavailablePort requirements:PortService22SSHSSH access.80HTTPWeb utility access. 443HTTPSWeb utility over HTTPS accessSupported Browsers:The net interface goals to guide browsers that meetthe following criteria:●0.2% marketplace proportion●now no longer Internet Explorer●now no longer Opera MiniSoftware

Requirements:Operating System: Windows and linuxTechnology: PYTHON, RASADependencies: pickle, pandas, numpy, scikit-examine,matplotlib,seaborn24 three. three Installing RASA and RASAX3.three.1 Installing RASAQuick Installationpip3install-U pippip3installrasaYou can create a brand new undertaking through running: rasa initStep-through-step Installation GuideYou can observe respectable rasa documentation part (linkto be included)three.three. 2 Installing RASA XRasa X:●layers on pinnacle of Rasa Open Source and facilitates you builda higher assistant●is a free, closed supply device to be had to all developers●may be deployed anywhere, so your schooling statistics stayssecure and proprietary3.three. 3Deploying Rasa XConfigure the VM instance25 Step 1 :Log in for your AWS Console and navigate to Services-> Compute-> EC2. Click Launch Instance.Step 2 :Choose an Amazon Machine Image(AMI)->Go toUbuntu Server 20.04 LTS>choose.26 Step three :Choose an example kind ast2.medium->ConfigureInstance Details27 Step 4 :Keep all default settings as it's far and click on onNext:Add StorageStep five :Here changesize(GiB)to one hundred after which clickonNext:Add Tags28 Step 6 :No modifications right here simply click on onNext:Configure Security GroupStep7:HereAddtwoRulesHTTPandHTTPSandthenclickonReviewandLaunch29 Step eight :Just click on onLaunchand your example may be created. 30 Step nine :Connect for your created instanceStep 10:Install the desired dependencies31 Step eleven:Check for the documents gift withinside the rasa folder.Step 12:Open the ipv4 cope with of the created instanceand connect with the github repository.Step13:Eureka!Nowallthefeaturesofrasaxcanbefoundandmodelcanbeimprovedbysharing tomultiple customers.32 Phase-4Proposed answer and implementation4.1Approach to remedy issues withinside the precise domainsProject Flow chart:33 Asmentionedintheproblemdescription,themainareasoffocusisonthefertilizerrecommendation,croprecommendation,etc. Theimportantqueriesrequiredbythefarmersweretakenintoaccountandaround5storypathsweredesignedaccordingly.Letshavealookat every of the tale paths.1.About us path:2.Crop fee path(carried out the usage of api calls):●Thisisoneofthepathsthatusesanapicall.Wehavetaken3majorcrops(rice,cotton and jute) and use an api name to the statistics.gov.inwebsite.●instance(https://api.statistics.gov.in/resource/6e8e9a24-491d-4bcb-bdf4-bb0724cbb926?api-key=579b464db66ec23bdd000001cdd3946e44ce4aad7209ff7b23ac571b&format=json&offset=0&limit=one hundred&filters[state_ut]=AndhraPradesh)whereapi-

keyistheuniquekeyobtainedbysigningintothedata.gov. inwebsitetogainaccess to study records from the government database.●ButinsteadofAndhraPradeshweprovidethestatethatwasextractedfromthefarmerduringconversationsinrasa.Thisgivesustheoutputintheformofajson format.●Nowwecanextractonlytherequiredinformationthatisneededbyusingindexingjustlikearrays.(ex:current[‘records’][0][‘_2017_18___prod__as_per_cab_meeting_dt__18_6_19__qty__in_lakh_bales_’]extractsfromthegovtdatabaseonlytheproduce as in step with cab assembly in lakh bales withinside the respectivestate). ●Oncethisstepisoverwecandisplayonlytheimportantinformationextractedaboutthecropandthestateinwhichitwasgrownasresponsesutteredbythechatbot.34 three.Fertilizer path:●Wefollowthesamestepsasmentionedinpricepathtoextractinformationaboutfertilizers as nicely the usage of api calls.●https://api.statistics.gov.in/resource/1a800a9a-7c6e-42ba-b238-6ae1c17d5195?api-key=&format=json&offset=0&limit=10&filters[state_u_t_]=.format(api_key,loc)this is35 4.Fertilizer advice path:●Thisisapathwhichusestherecommendationsthatwasprovidedbyacrophealth knowledge website.●Wehavestoredthedetailscollectedintheformofadictionaryandcallthespecificinformationinthedictionarybasedonthelevelofnutrientsthesoil(N,P,Kvalues)haswhencomparedtothenationalstandardmentionedinthewebsite and offer the required guidelines basedon that.36 five. Crop advice path:Inthecroprecommendationapplication,theusercanprovidethesoildatafrom their aspect and the utility will expect whichcrop must the person grow.●ThisisthemostessentialpartoftheAIchatbotwhichgivessuggestionsaboutwhatcroptogrowusingpredictionsbyanMLmodel.WeshallseeadetailedanalysisofthevariousMLmodelsthatwereusedandtheirrespectivescoresinthe coming section.37 4.2The ML fashions and their scores4.2.1Data extraction and normalization:Thisstepisneededbecausethedataextractedfromgovtportalsbeingcompletelyraw,weneedtoextractonlytherequiredfeaturestotrainourmodel.Nowfromthefertilizers. csv(N,P,K,phasfeatures)andcropdata.csv(temperature,humidity,phandrainfall)aretobemergedsothat more functions may be used to educate our statistics version.The labels of the very last version are as follows:array([rice, wheat, mungbean, tea, millet,maize, lentil,jute, coffee, cotton, groundnut, peas,rubber,sugarcane, tobacco, kidneybeans, mothbeans,coconut,blackgram, adzukibeans, pigeonpeas, chickpea,banana,grapes, apple, mango, muskmelon, orange,papaya,pomegranate, watermelon], dtype=object)4.2. 2 The Crop advice version:The following are the functions which are utilized by ourML version for crop advice:Index([N, P, K, temperature, humidity, ph,rainfall, label]Comparing accuracy from distinctive ML fashions that werebuilt:1.Gaussian naive bayes:38 2.Decision tree:three.Support Vector Machine:39 4.Logistic Regression5.Random Forest:forty 6. XGBoost:Final accuracy evaluation of all of the fashions:forty one Asfromtheabovefigure,wecansaythatrandomprovidesasignificantaccuracylevelforourMLmodeltomakeproperpredictions,hencewesavethismodelintoapicklefileandimportthat into rasa to assist our bot show the predictedcrop. Phase-5CONCLUSION AND FUTURE SCOPE5.1Conclusions:WehaveusedtheAIchatbottoitsnewestlevelintothefieldwhereitwasleastexposed(Agriculturalsector,Farming).WehopetohavecreatedafoundationformanysimilarfuturedevelopmentstohelptheAgriculturalsectorprogressandprosperwithsuchnewandfascinatingtechnologies.ThisprojecthasalsoshownthatAIchatbotscannotonlybeusedforbusinessmanagement,butcanalsorevolutionizeandchangethewaythatthecurrentAgricultural device works.ThisprojectwasagenuineattemptbytheteammemberstomakeAIchatbotsrevolutionizethepresent agricultural device with utmost diligence.five.2Future scope:1.Thelanguageusedtoimplementtheprojectwasinenglish,thiscanhoweverbeextendedtomultiplelanguageswithanoptionforthefarmertochoosefromwiththechatbot suggestions additionally withinside the language chosenby the farmer.2. Withmoreamountoftrainingdatainhand,themodelcouldbetrainedrigorouslyandalso with extra enter functions including the season inwhich the crop is grown, etc.three.Avoicecanalsobeaddedtotheutterancesbythebotinthenativelanguagewhichthefarmer chooses(including Alexa,Siri,etc.)forty two 4.Anotherfeatureofenablingthefarmerstoselltheirproduceinthenearestavailableshopthatprovidesthebestratesandalsoconnectsthefarmerstothebestfertilizersellingshopsintheirlocality. (Thisfeaturecouldinvolveintegratingourchatbotwithgoogle maps).five.3How to apply our repository and make a contribution to ourprojectStep1:Cloneourgithubrepositoryintoyourdesiredlocationusingthebelowlink:https://github.com/kuluruvineeth/AgrosahakarStep 2: create a VM example on any cloud platformsuch as aws, azure, GCP, heroku.Step3:DeployRASAXserveronVMinstancecreatedinstep1asmentionedinthephase2.FordetailedinformationpleaserefertotheofficialRASAdocumentation:RASAdocumentationStep 4:Now your RASAX server may be up and running.Step five:Connect your repository to the RASAX server:1.Generate SSH keys:●Navigatebacktoyourterminal.Ifyou'veclosedtheconnectiontoyourVMinstance, log again in.●Run the subsequent command to generate a public andprivate SSH keyssh-keygen -t rsa -b4096-f git-deploy-key●Afterthekeyhasfinishedgenerating,youcanrunthelscommandinthe/rasa/etcdirectorytoseethenewlycreatedkeys:git-deploy-key(theprivatekey)and git-deploy-key.pub (the general public key).2. Save the general public key in GitHub:●We'llprintthepublickeytotheterminalsowecancopyandsaveitinourGitHub settings.Run the subsequent command to viewthe public key:catgit-deploy-key.pub●Copy the complete contents.forty three

InyourGitHubrepository,navigatetoSettings>Deploykeys.ClicktheAdddeploykeybuttonandpasteyourpublickeyintotheKeybox.Givethekeyatitletoidentifyit,likemedicare-rasax,andbesuretochecktheboxtoallowWrite permissions. Click Add key.three.We'llestablishtheconnectionbetweentheRasaXinstanceandGitHubrepositorybymaking a POST request to this Rasa X API endpoint.4.The JSON request frame includes 3 portions of records:●repository_url-TheSSHURLforyourGitHubrepository,e.g.kuluruvineeth/Agrosahakar.git●TogettheURLforyourrepo,clicktheCloneordownloadbuttononyourGitHub repository and choose the Use SSH link.●target_branch-TheGitHubrepositorybranchwhereRasaXshouldpushandpull modifications, e.g. master●ssh_key- The non-public SSH key generated for your server.Tocopytheprivatekey,runthefollowingcommandinthe/etc/rasafolderonyour server:cat git-deploy-keyCopy the complete contents of the key, such as thelines-----BEGINRSAPRIVATEKEY-----And-----ENDRSAPRIVATEKEY-----Once you've assembled the JSON object, you'll havesomething like this:We'llsavethisJSONobjectinafilecalledrepository. json,inthe/rasa/etcfolderon the server5.First, let's create that filetouchrepository.json●Open the report to edit it:nanorepository.jsonPastetheJSONobjectintothefile.PressControl+Xtoexittheeditor,andconfirm Y to shop your modifications while prompted.●Headbacktotheterminal.Stillinthe/etc/rasadirectory,runthefollowingcURLcommandwhichyouwillgetclickingonuploadmodelbuttoninRASAXinterface,replacingtheRasaXserverURLandAPIkey values together along with your own:curl --request POST --url http:///api/projects/default/git_repositories? api_token= --headercontent-kind: utility/json --statistics-binary @repository.json●ChecktheconnectionbynavigatingbacktotheRasaXdashboardinyourbrowserandcheckingtheIntegratedVersionControliconinthebottomleftcorner.Iftheconnectionwassuccessful,you'llseeeitheragreenindicator,meaningRasaXisuptodatewiththeGitHubrepository,orayellowindicator,mea ningRasaXhaschangesthatneedtobepushed to GitHub. Step 6: Set up the Actions Server:45 ●Wehaveonemorethingtoconfigure:theassistant’scustomactionserver.Todothis,we’llplacetheassistant’scustomactioncodewithinanactionsdirectoryonthe server.●Connecttoyourserverandmakesureyou’reinthe/etc/rasadirectory.Inyourterminal,runthefollowingcommandstocreatetheactionsdirectoryandtwofiles interior it:__init__.pyandactions.py:●Runnanoactions/movements.pyto edit the newly-createdactions.py report.●Pastethecodefromyourassistant’sactions.pyfileintotheblankfile,shop,andclose the editor.●Then,weneedtocreateadocker-compose.override.ymlfile.Thisfileinstructsdocker-composetospinupacustomactionserverwhentheRasaXserverstartsup.●Let’s create that report:contact docker-compose.override.ymlOpen the report editor:nano docker-compose.override.ymlAnd upload the subsequent contents:version:three.4services:app:image:rasa/rasa-sdk:latestvolumes:-./movements:/app/actionsexpose:-5055depends_on:- rasa-production●Here,we’reusingtherasa-sdkimagetorunourcustomactions,andwe’respecifyingthattheactionsserverwilllistenonport5055. Theactionsserverdependsontherasa-productionservice,whichis46 responsibleforrunningthetrainedmodel,parsingintentmessages,andpredicting movements.●Onceyou’vesavedthefile,youcanrestarttheRasaXdockercontainerand the assistant may be absolutely purposeful on RasaX.sudo docker-compose up -dStep7:Eureka!!!Youhavedonethecompletesetupandarereadytouseourchatbot.Feelfree to proportion your feedback in github.More Screenshots47 forty eight CROP PRICE VIDEOFERTI INFO VIDEOFERTI RECOMMENDATION VIDEOCROP RECOMMENDATION VIDEO49 50

MATCHED SOURCES:

twitter.com - <1>Compare

https://twitter.com/hashtag/Antibioticresistance

www.tandfonline.com - <1>Compare

http://www.tandfonline.com/action/cookieAbsent www.irs.gov - *<1>Compare*

https://www.irs.gov/publications/p583