CENTRE FOR ENDANGERED LANGUAGES SIKKIM UNIVERSITY

Meta Documentation

How to compile an Android Dictionary application using Dictionary App Builder

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How to build an Android Dictionary App(lication) using Dictionary App Builder

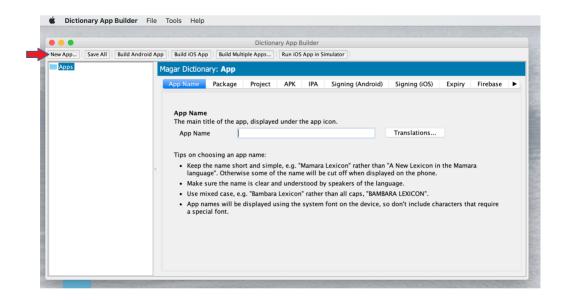
Dictionary App Builder is software that is used to build a customized dictionary app for the Android and iOS platforms which can be used on phones and tablets. The software can be downloaded from *software.sil.org*. Once the Dictionary App Builder is installed, certain series of steps has to be followed in order to build a dictionary for a language that one is working on.

The home page of Dictionary App Builder looks as shown in the figure below.

•	Dictionary App Builder
ew App Save All Build Android App	p Build iOS App Build Multiple Apps Run iOS App in Simulator
Apps	Magar Dictionary: App
ē	App Name The main title of the app, displayed under the app icon. App Name Translations Tips on choosing an app name: • Keep the name short and simple, e.g. "Mamara Lexicon" rather than "A New Lexicon in the Mamara language". Otherwise some of the name will be cut off when displayed on the phone. • Make sure the name is clear and understood by speakers of the language. • Use mixed case, e.g. "Bambara Lexicon" rather than all caps, "BAMBARA LEXICON". • App names will be displayed using the system font on the device, so don't include characters that require a special font.

Steps for creating dictionary using Dictionary App Builder

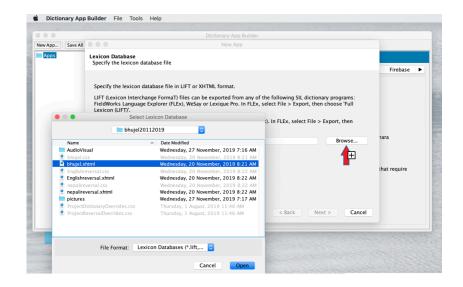
Step 1: Click on New App menu on the toolbar shown on the home page of Dictionary App Builder.



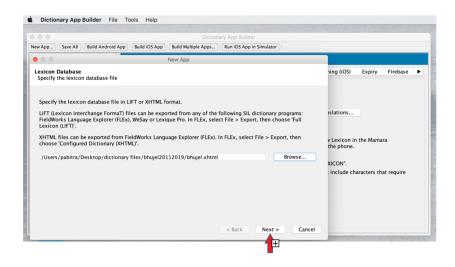
Step 2: New App dialogue box opens up where the lexicon database file has to be specified.

		ary App Builder	
New App Save All Build Android A	pp Build iOS App Build Multiple Apps	Run iOS App in Simulator	
	New App		
Lexicon Database Specify the lexicon database file			gning (iOS) Expiry Firebase 🕨
FieldWorks Language Explorer (FLE Lexicon (LIFT)'.) files can be exported from any of the fo Ex), WeSay or Lexique Pro. In FLEx, select I FieldWorks Language Explorer (FLEx). In	File > Export, then choose 'Full	inslations
choose 'Configured Dictionary (XH	(TML)'.	Browse	the phone.
	ιτμι <i>γ</i> .	Browse	

Step 3: Browse and select the LIFT or XHTML file that has been exported from FLEx, WeSay or Lexi-Pro.



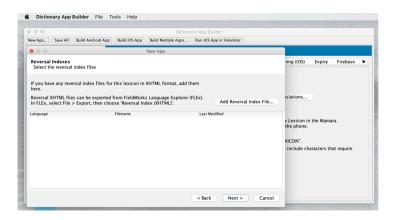
Step 4: After selecting the required file click on the Next button.



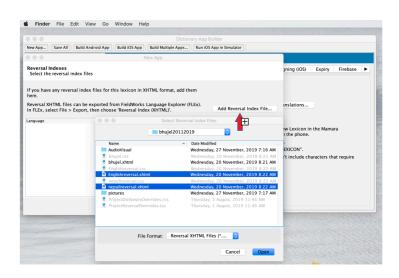
Step 5: After clicking the Next button the Lexicon Details window will be displayed. This dialogue box specifies the Filename, File Format, the Number of Entries in the lexicon, the Lexicon language, Gloss language. Review the details of the file and if it matches the source file you can move ahead and click on the Next button otherwise select the correct exported file.

	Dictionary App Builder	
lew App Save All Bui	ld Android App Build iOS App Build Multiple Apps Run iOS App in Simulator	
• • •	New App	
Lexicon Details Review the details of th	his lexicon	ning (iOS) Expiry Firebase
qaa-IN-x-bir		
Filename: File Format:	/Users/pabitra/Desktop/dictionary files/bhujel20112019/bhujel.xhtml XHTML	islations
Last Modified:	20 Nov 2019 08:21:16	
Last Modified:	20 Nov 2019 08:21:16	v Lexicon in the Mamara
Number of Entries:	3,179	the phone.
Lexicon languages:	qaa-IN-x-bir	
Gloss languages:	qaa-IN-x-bir-sikkim, English [en], Nepali [ne]	XICON".
	1	include characters that require
	< Back Next > Cance	

Step 6: If you are using an XHTML file to build the app one needs to add the Reversal Index file separately. The Reversal Index has to exported separately from FLEx. The New App dialog box allows you to add the Reversal Index file. In the New App dialog box add the Reversal Index File that has been exported from the FLEx.



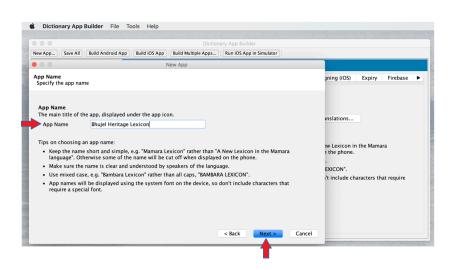
Step 7: Click on Add Reversal Index File button on the New App dialog box. Choose the reversal file / files exported from the FLEx that are to be added in Dictionary App Builder.



Step 8: Once the Reversal Index File is added the file/files should be visible on the New App dialog box as shown below. Now you can proceed and click on Next button.

			ary App Builder	
New App Save All Build Android	d App Build iOS App			
		New App		
Reversal Indexes Select the reversal index files				gning (iOS) Expiry Firebase 🕨
If you have any reversal index file here. Reversal XHTML files can be expo In FLEx, select File > Export, then	rted from FieldWorks	Language Explorer (Fl		inslations
anguage	Filename		Last Modified	
English [en]	Englishreversa	20 Nov 2019 08:22:52	w Lexicon in the Mamara	
Nepali [ne]	nepalireversal.	knumi	20 Nov 2019 08:22:00	the phone.
				EXICON". i't include characters that require

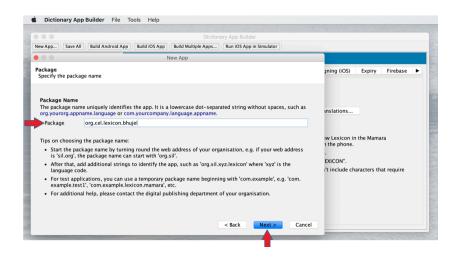
Step 9: On the New App dialog box provide the App Name on the slot as per the instruction in the dialog box (Tips for naming the App is also provided). Click on the Next button once it is done.



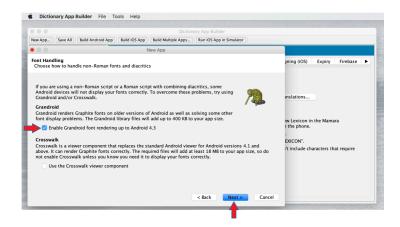
Step 10: After the App name, specify the Package name. The package name is used to uniquely identify the app. The Package name should be *lower case dot separated string without space*. It can be as shown in the example below.

org.yourorg.appname.language OR com.yourcompany.language.appnane org.cel.lexicon.sherpa OR com.cel.sherpa.lexicon org.cel.dictionary.magar OR com.cel.magar.dictionary

Once the Package name is assigned click on the Next button.

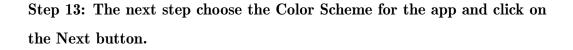


Step 11: The next step Font Handling allows one to handle non-Roman fonts and diacritics. To do this enable Grandroid and Crosswalk option. Check on the required features and then click on the Next button.



Step 12: The next dialog box is to specify the Fonts used for the language(s) both the vernacular and analysis languages that were used while making entries in FLEx. One must choose compatible fonts from the list. For those fonts that are not visible on the list one can click on the other button to specify the required font file. Once the appropriate fonts are being selected click on the Next button.

		nary App Builder	
New App Save All Build Android App	Build IOS App Build Multiple Apps	Run iOS App in Simulator	
• • •	New App		
Fonts Specify the font for each language			gning (IOS) Expiry Firebase 🕨
Select the font to use for each languag subsets that contain the characters yo	u need rather than full fonts.		inslations
qaa-IN-x-bir	Mangal	Other	
qaa-IN-x-bir-sikkim	Gentium Plus (Full)	Other	
English [en]	Gentium Plus (Full)	Other	w Lexicon in the Mamara the phone.
Nepali [ne]	Mangal	Other	EXICON".
			't include characters that require



			ary App Builder	
New App Save All Build Android App	Build iOS App	Build Multiple Apps	Run iOS App in Simulator	
	١	New App		
Color Scheme Choose the color scheme				aning (iOS) Expiry Firebase
Select a color scheme for the app. Yo	ı can customise	e individual colors lat	er.	
Dark Olive Green		Light Green		inslations
Lime		Amber		w Lexicon in the Mamara
Orange		Deep Orange	e	w Lexicon in the Mamara 1 the phone.
Dark Orange		Red		EXICON". I't include characters that require
Brown		Chocolate		
Black				
			< Back Next > Ca	ncel

Step 14: Select the Icon for the App. One can choose from the available sets of icons or can use custom icons. The custom icons can be selected from the Browse option. However, the custom icons must be of the appropriate size specified in the window. Once the desired icon is selected, click on the Next button.

		ary App Builder	
New App Save All Build Andro	id App Build iOS App Build Multiple Apps	Run iOS App in Simulator	
	New App		
Icon Choose the application launche	er icon		gning (iOS) Expiry Firebase 🕨
PNG image files. Required And	can choose an icon in the table below or cli roid icon sizes are: 48x48 (mdpi), 72x72 (hc ill also need a 512x512 icon if you want to	lpi), 96x96 (xhdpi), 144x144 (xxhdpi)	inslations
जिस 🍪	š 🗟 🍑	Browse	w Lexicon in the Mamara 1 the phone.
			EXICON". I't include characters that require

Step 15: The next step is to specify the Keystore and Passwords to encrypt the app. If one has already created a key file then simply browse and select it. If you are creating a new keystore then click on Create New Keystore Wizard. It is a onetime process which means once you have created a keystore and password for a language then it can be used any number of times whenever you modify and improve your App. One does not need to create the key again and again. However ensure to remember the password.

		Dictionar	ry App Builder		
New App Save All Build Andro	id App Build iOS App Buil	ld Multiple Apps	Run iOS App in Simulato	r	
	New A	App			
Signing Specify the keystore, alias and p	basswords to sign the app				gning (iOS) Expiry Firebase 🕨
The app must be signed before If you do not already have a ke KeyStore	y, use the <u>Create New KeyS</u>		ice.	Browse	inslations
Password	•				w Lexicon in the Mamara the phone.
Get A	lias List				EXICON".
			0		i't include characters that require
Alias					
Alias Password					

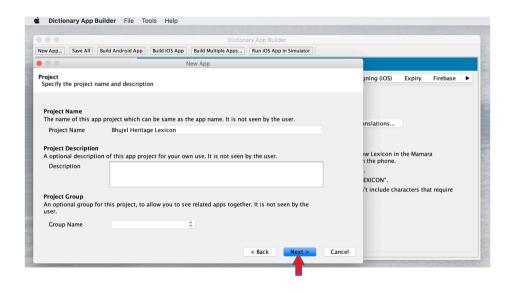
Step 16: After clicking on Create New Keystore Wizard, a Create New KeyStore dialog box will appear. In this fill the keystore filename and password (at least 6 characters) for the key. Once done click on the Next button.

	Create New KeyStore
KeyStore Specify a keystore filen	ame and password
created it, you can use	ou create a new self-signed keystore to sign your apps. Once you have this same keystore to sign other apps.
	password for the new keystore. Browse
Filename Folder	/Users/pabitra/App Builder/keystore
Folder	/osers/pabitra/App builder/keystore
Password	(at least 6 characters)
Confirm Password	
	< Back Next > Cancel

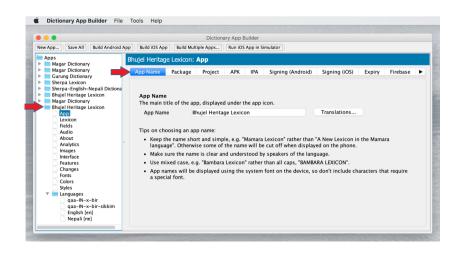
Step 17: Now you can find the recently created key selected in the Keystore window. Click on the Next button

				ary App Builder	
lew App	Save All Build Android App	p Build iOS App Build Mult	tiple Apps	Run iOS App in Simulator	
		New App			
Signing		Create New KeyS	tore		aning (iOS) Expiry Firebase
Specifi	KeyStore Specify a keystore filename	e and password			ining (ob) Expiry Thebase
The a _l If you		create a new self-signed key s same keystore to sign oth		gn your apps. Once you have	inslations
KeySte	Choose a filename and pa	ssword for the new keystore	е.		
Passw	Filename	bhujel		Browse	w Lexicon in the Mamara
	Folder	/Users/pabitra/App Builde	er/keystore		the phone.
	Password		(at leas	t 6 characters)	EXICON".
Alias	Confirm Password	•••••	1		i't include characters that require
Passw	Commi Password				
			< Back	Next > Cancel	

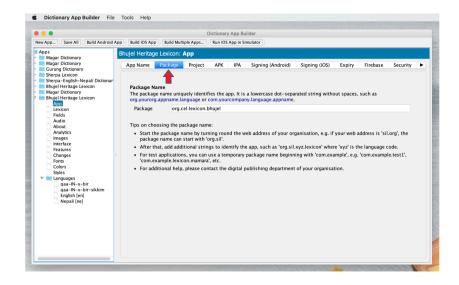
Step 18: In this step specify the Project name and a Project Description. These fields are not visible to the user when the app is installed. Here the description of the project is optional. You can give the details like who created the app, date on which app was created and etc. Click on the Next button after filling up the details.

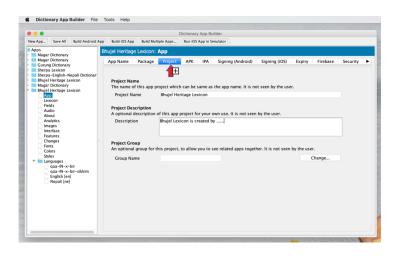


Step 19: Once all of the above mentioned process is successfully completed a new app project will be created in the Dictionary App Builder. The window below shows the various details. By default the window shows the App Name that you have given in step 5. All the previously filled in details can be accessed through various tabs. These tabs are App Name, Package, Project, APK, IPA, Signing (Android), Signing (IOS), Expiry, Firebase, Security and Permission.

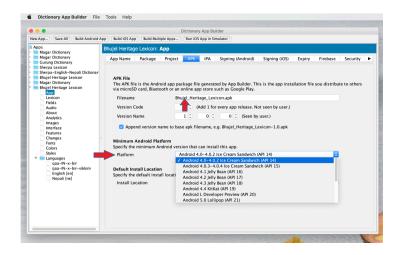


Step 20: Use the tabs Package and Project to check the information specified and update when necessary.

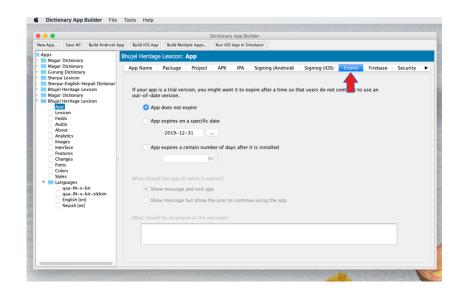




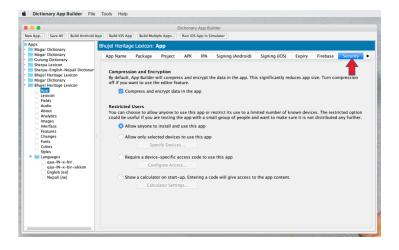
Step 21: An APK file is an Android app package file generated by the Dictionary App Builder. This file is used for app installation. It can be distributed to other users via Bluetooth, SD card or shared by other means. The APK tab shows the automatically generated Filename. One can update the filename when it is necessary. One must select the minimum Android version to which the app can be installed. The minimum Android Platform that is available is Android 2.3-3.3.2 Gingerbread (API 9).



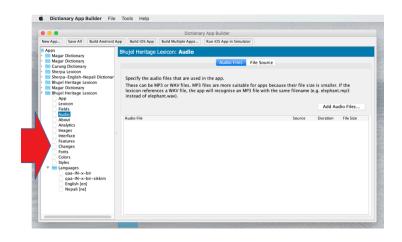
Step 22: The expiry of the App being developed can be decided by the creator. The Expiry tab is used for this. Three options are available for it. Choose the appropriate option and enable the checkbox to make it active.



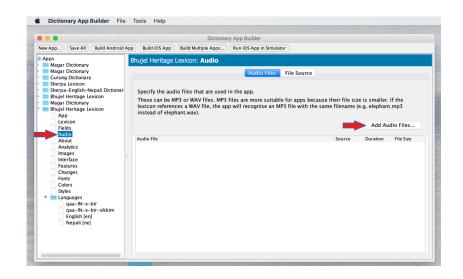
Step 23: Next to Expiry is the Security tab. When clicked on it the tab shows two options Compression and Encryption and Restricted Users. The Compression and Encryption of the data is by default enabled. One can choose to disable the option if required. The users of the app can also be restricted. One can allow anyone to install and use the app or can allow only the selected devices to use the app for which you need to specify the devices by entering the device name followed by the serial number available for the particular devices that can be retrieve from the about phone or about tablet page available in the settings of various mobiles and tablets. The restriction can also be made using device specific access code to use the app.



Step 24: On the left pane of the Dictionary App Builder one can navigate to other options in the project. You may have noticed that in this panel the project is listed under the main folder named Apps. Each project contains several options they are: App, Lexicon, Fields, Audio, About, Analytics, Images, Interface, Features, Changes, Fonts, Colors and Styles. Along with these a sub folder called Languages which list the languages used in the App. All these features allows us to customise the App.



Step 25: The dictionary being built will contains thousands of words and for each word if audio can also be inserted then the dictionary becomes more attractive and it becomes easier for users to learn the pronunciations as well and becomes more interactive. For this click on the Audio option displayed on left pane of the window. Once you click on the Audio option the page as shown below will appear. In this page you can add audio by using the Add Audio Files button.

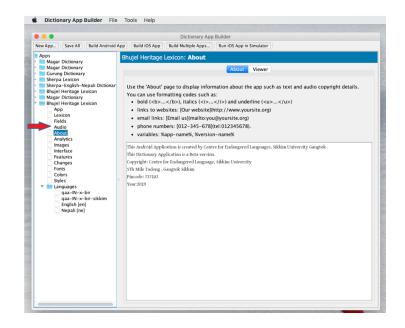


Step 26: After clicking on the Add Audio Files button, browse and select all the audio files that has been saved in the same folder where the LIFT or XHTML file was exported. Once all the audio files are chosen the window will be in the form as shown below. By default all the audios added to the

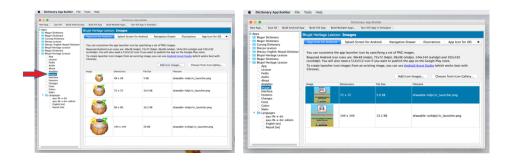
•	Dictionary App Builder		
ew App Save All Build Android A	pp Build IOS App Build Multiple Apps Run IOS App in Simulator		
Apps	Bhuiel Heritage Lexicon: Audio		
Magar Dictionary Magar Dictionary	Audio File	File Source	
Gurung Dictionary	Audio File	File Source	
Sherpa Lexicon Sherpa-English-Nepali Dictionar			
Bhuiel Heritage Lexicon	Specify the audio files that are used in the app.		
Magar Dictionary	These can be MP3 or WAV files. MP3 files are more suitable for references a WAV file, the app will recognise an MP3 file with		
Bhujel Heritage Lexicon	references a nove me, the app will recognize an wrist the will	the same menance (e.g. crephant.mps)	
Lexicon			Add Audio Files
Fields	Audio File	Source	Duration
Audio	byh 825. achar.way	Source 1	00:00 73.6 KB
Analytics	byh B25 admhead.way	Source 1	00:00 43 KB
Images	byh_B25_afterthat.wav	Source 1	00:00 67 KB
Interface Features	byh_B25_air01.wav	Source 1	00:00 61.5 KB
Changes	byh_B25_ajma01.wav	Source 1	00:00 66.7 KB
Fonts	byh_B25_alcohol.wav	Source 1	00:00 64.8 KB
Colors Styles	byh_B25_all01.wav	Source 1	00:00 65.5 KB
V Languages	byh_B25_alongwith01.wav	Source 1	00:00 55.5 KB
qaa-IN-x-bir	byh_B25_amla01.wav	Source 1	00:00 62.6 KB
qaa-IN-x-bir-sikkim English (en)	byh_B25_animals01.wav	Source 1	00:00 56.4 KB
Nepali [ne]	byh_B25_ant.wav	Source 1	00:00 58.2 KB
	byh_B25_anus.wav	Source 1	00:00 56.1 KB
	byh_B25_armpit.wav	Source 1	00:00 78.7 KB
	byh_B25_arrow.wav	Source 1	00:00 56.2 KB
	byh_B25_ashes.wav	Source 1	00:00 42.4 KB
	byh_B25_ate.wav	Source 1 Source 1	00:00 54 KB 00:01 98.5 KB
	byh_B25_atypeoftree.wav	Source 1 Source 1	00:01 98.5 KB
	byh_B25_aunt.wav byh_B25_babbler.wav	Source 1 Source 1	00:00 41.7 KB
	byh_B25_babliers.wav	Source 1 Source 1	00:00 S2.3 KB
	byh_B25_backbone.wav	Source 1 Source 1	00:00 35.6 KB
	byn_825_backbone.wav byh_825_balancescale2.wav	Source 1 Source 1	00:00 35.6 KB
	byn_825_balancescalez.wav byh_825_bamboo.wav	Source 1 Source 1	00:00 75 KB
	byh_825_bamboo5.wav	Source 1 Source 1	00:00 56.7 KB
	byh_B25_bambooblower.way	Source 1 Source 1	00:00 49 KB

App will be packed inside the Apk file.

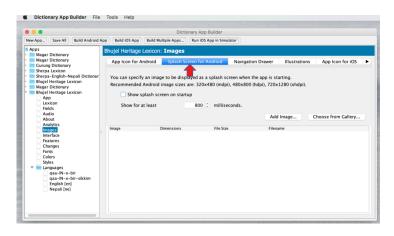
Step 27: The details about the application that is being developed can be given to the users to know more about the App. To do this click on the About option on the left pane of the window. In the about page you can give detailed information about the App.



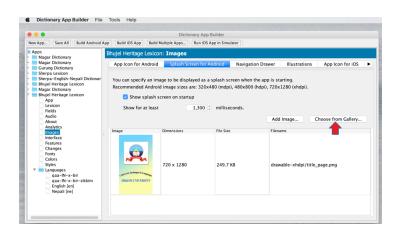
Step 28: The icon that has been selected for the app (step 14) can be customised according to the need. For this, click on Images option appearing on the left pane of the window. From the images page select the size that you think is suitable for the app. One can either choose from the default icon image that is available or can choose the icons that one has created of their own.



Step 29: One can add an image to the Splash Screen of the App that will be displayed whenever the App is starting and can also specify for how long to display the image on the screen. For this click on the Splash Screen for Android tab.



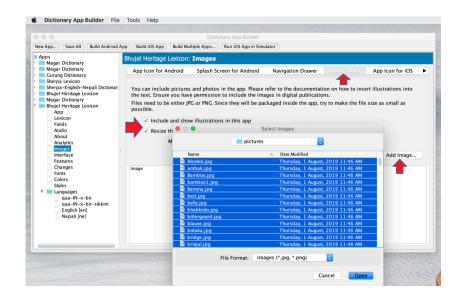
Step 30: After clicking on the Splash Screen for Android tab, browse the image for splash screen from the location where the image is stored by clicking on Choose from Gallery option and check on the box stating "Show splash screen on startup" and then set the timings as well.



Step 31: For adding image to the Navigation Drawer click on the Navigation Drawer tab and browse the image from the location where it is stored in the same way as done with the splash screen.

• • •		Dictionary /	App Builder	
New App Save All Build Android A	App Build iOS App Bui	ld Multiple Apps Run	iOS App in Simulator	
Agar Dictionary Magar Dictionary Magar Dictionary Gurung Dictionary Surges Dictionary Shape Heritage Lepsilo Dictionar Shape Length Magar Dictionary Magar Magar Dictionary Magar Magar	Images should be Pl Android: 576x324 (I	id Splash Screen f yed at the top of the n NG files with an aspect	avigation drawer. ratio of 16:9. Recomme , 1152x648 (xxhdpi), 15	

Step 32: The Dictionary will be more interactive if it contains images for the entries. So for this purpose one can use the Illustrations tab. The Illustration tab allows you to include illustration and images to the App and control their size. Check Include and show Illustration in this app to include the images. Then click on Add Image option this will let you browse the location where the images for each entries were saved. The image folder will also be exported from the FLEx automatically whenever the lexicon database file is exported. Once the images are added check on the resize options and set the desired width for the images.



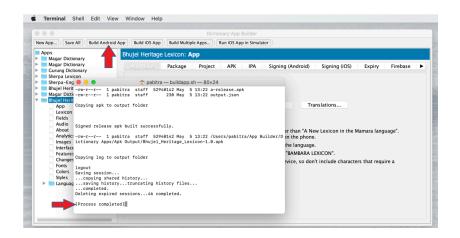
Step 33: The language for menus and messages can also be customised. Click on the Interface option available on the left pane of the window to do this. The Interface page allows you to choose the language that you want the user to see for various menus and messages. One can choose from the available list of languages or can add new language by clicking on the Add Language button.

New App Save All Build Android A	App Build iOS A	App Build Multiple Apps Run	iOS App in Simulator				
Apps	Bhuiel Herit	age Lexicon: Interface					
Magar Dictionary	bilajer Heria						
Gurung Dictionary			guages Translations Layout	t Direction			
Sherpa Lexicon							
Sherpa-English-Nepali Dictionar Bhujel Heritage Lexicon	Which inter	rface language for menus and r	nessages do you want users to see	e when they first launch the app?			
Magar Dictionary	• Us	e the current system language	of the device. If no translations ex	ist in this language, use:			
🕫 🚞 Bhujel Heritage Lexicon			0				
App							
Fields	Us	Use this language:					
Audio							
About Analytics							
Images							
Interface	Which inter	rface languages do you want us	ers to be able to choose from in t	he app Settings? Add Language			
	Enabled	Language Name	Language Code	Text Font			
Features			en	system			
Changes Fonts		English	en				
Changes Fonts Colors		English French	fr	system			
Changes Fonts Colors Styles							
Changes Fonts Colors Styles		French Spanish Portuguese	fr	system			
Changes Fonts Colors Styles Languages qaa-IN-x-bir qaa-IN-x-bir		French Spanish Portuguese Russian	fr es pt ru	system system			
Changes Fonts Colors Styles qaa-IN-x-bir qaa-IN-x-bir gaa-IN-x-birsikkim English (en)		French Spanish Portuguese Russian Ukrainian	fr es pt	system system system			
Changes Fonts Colors Styles Languages qaa-IN-x-bir qaa-IN-x-bir		French Spanish Portuguese Russian Ukrainian Turkish	fr es pt ru uk tr	system system system system system system			
Changes Fonts Colors Styles qaa-IN-x-bir qaa-IN-x-bir gaa-IN-x-birsikkim English (en)		French Spanish Portuguese Russian Ukrainian	fr es pt ru uk	system system system system system			

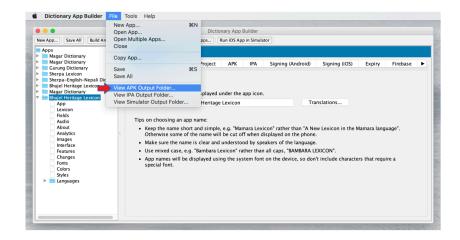
Step 34: The Languages option on the left pane of the window allows you to control the order of the dictionary. The languages defined in the lexicon will be displayed in the window. It can be reordered just by dragging the rows up or down and can even be unchecked if not required.

		Dictionary App B	ilder		
ew App Save All Build Android Ap	Build iO	S App Build Multiple Apps	Run iOS App in Simulator		
Apps Magar Dictionary Magar Dictionary	Bhujel Her	itage Lexicon: Languag	es Languages		
Gurung Dictionary Sherpa Lexicon Sherpa-English-Nepali Dictiona Bhujel Heritage Lexicon Magar Dictionary	The languages defined in the lexicon are displayed in the table below. You can reorder the languages by dragging rows up or down.				
Bhujel Heritage Lexicon	Enabled	Language Name	Code	Туре	
App Lexicon		Bhujel	qaa-IN-x-bir	Vernacular	
Fields		Nepali	ne	Gloss	
Audio		English	en	Gloss	
Analytics		-	gaa-IN-x-bir-sikkim	Gloss	
Images Interface Features Changes Fonts Styles Innguages Bhujel [qaa-IN-x-bir] Nepali [ne] English [en] qaa-IN-x-bir-sikkim					

Step 35: These are the various steps that are needed to be followed for building the apk file. When all the features are selected and all the mandatory details are entered the final step is to build an apk file. For this click on Build Android App. Once you click on it build program runs up and after it is completed it will display a message "Process completed".



Now on the main window of Dictionary App Builder, you can go to: File > View APK Output Folder to get the apk installation file for the dictionary.



The figure below shows the folder which contain the apk installation files that can now be installed in your android phones and tablets.

ew App	Save All Build Android App	Dictionary App Build IOS App Build Multiple Apps Run IOS App	p in Simulator					
			o in sindlator					
	Dictionary	ijel Heritage Lexicon: App						
	Dictionary	App Name Package Project APK	IPA Signing (/	Android)	Signing (iOS)	Expiry	Firebase	►
Sherpa	Lexicon							
	English_Nanali Dictiona		Apk Output					
Bhujel Magar								
Bhujel	< >			*	Q Searc			
Ap	Favourites	Name	Date Modified	Size	Kind			
Fie	😻 Dropbox	Bhujel_Heritage_Lexicon-1.0-output.log	1:22 PM	20 KB	Log File			
Au	Applications	Bhujel_Heritage_Lexicon-1.0.apk	1:22 PM	52.9 MB	Document			
Ab An:		🖡 🛅 final	1:24 PM		Folder			
Imi	Recents							
Inte	MirDrop							
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