Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Kurdish News Dataset Headlines (KNDH) through multiclass classification

Soran Badawi[a], Ari M. Saeed[b,*], Sara A. Ahmed[c], Peshraw Ahmed Abdalla[b], Diyari A. Hassan[d]

[a] *Language Center, Charmo University, KRG, Chamchamal, Kurdistan, Iraq*
[b] *Computer Science Department, University of Halabja, KRG, Halabja, Kurdistan, Iraq*
[c] *Department of Computer Science, Komar University of Science and Technology, Sulaymaniyah, Kurdistan Region, Iraq*
[d] *Faculty of Engineering & Computer Science, Qaiwan International University, Sulaymaniyah, Kurdistan Region-Iraq*

ARTICLE INFO

Article history:
Received 26 January 2023
Revised 5 March 2023
Accepted 29 March 2023
Available online 13 April 2023

Dataset link: Kurdish News Dataset Headlines (KNDH) through Multiclass Classificatio (Original data)

Keywords:
Kurdish text classification
News headline dataset
Natural language processing
Text pre-processing

ABSTRACT

The rapid growth of technology has massively increased the amount of text data. The data can be mined and utilized for numerous natural language processing (NLP) tasks, particularly text classification. The core part of text classification is collecting the data for predicting a good model. This paper collects Kurdish News Dataset Headlines (KNDH) for text classification. The dataset consists of 50000 news headlines which are equally distributed among five classes, with 10000 headlines for each class (Social, Sport, Health, Economic, and Technology). The percentage ratio of getting the channels of headlines is distinct, while the numbers of samples are equal for each category. There are 34 distinct channels that are used to collect the different headlines for each class, such as 8 channels for economics, 14 channels for health, 18 channels for science, 15 channels for social, and 5 channels for sport. The dataset is preprocessed using the Kurdish Language Processing Toolkit (KLPT) for tokenizing, spell-checking, stemming, and preprocessing.

* Corresponding author.
E-mail address: ari.said@uoh.edu.iq (S. Badawi).

https://doi.org/10.1016/j.dib.2023.109120

Specifications Table

Subject:	Applied Machine Learning
Specific subject area:	Kurdish News Dataset Headlines (KNDH) through Multiclass Classification.
Type of data:	Text Figure Table
How the data were acquired:	ParsHub tool and BeautifulSoup library in Python are used to collect data from news websites.
Data format:	Raw
Description of data collection:	The specific URL is added to the page intended to collect data, and then some headlines are selected for fetching the texts.
Data source location:	Charmo University
Data accessibility:	+Repository name: Mendeley Data Data identification number: 10.17632/kb7vvkg2th.2 Direct link to the dataset [1]: https://doi.org/10.17632/kb7vvkg2th.2

Value of the Data

1. This is an attempt to build a huge multi-categorical dataset for the Kurdish language. Moreover, it can be beneficial for improving the sentiment analysis field in the Kurdish language.
2. The data include the headlines of popular Kurdish news websites, which researchers can use to conduct research in the language at a syntactical level.
3. Various algorithms can be applied to predict different models in text classification.
4. This dataset provides another reference for the Kurdish language, making it closer to being resourced.
5. Each news website organizes its articles into categories before publishing them, allowing users to quickly select the categories of news that interest them whenever they visit the site. For instance, some readers want to read about the most recent technological advancements, so they always click on the technology section when they visit a news website. They might be interested in politics, business, entertainment, or even sports, but they may not enjoy reading about technology. Currently, due to the need for datasets, the content administrators of news websites manually categorize Kurdish news articles. However, they can also use this dataset to build a highly accurate model, since KNDH is a massive Kurdish dataset for news classification based on five categories, to deploy a machine learning model on their websites that reads the news headline or the news content and identifies the category of the news.

1. Objective

The Kurdish language is classified as less resourced in terms of natural language processing (NLP). The similar datasets for other languages previously were conducted, but the sources for the Kurdish languages is inferior and a small number of the dataset available related to the language [2,3]. The language needs essential tools such as name recognition, lemmatization, POS tagger, etc. This issue is primarily rooted in need for a more efficient corpus. The datasets available in the language include collecting comments and tweets from social media. The primary issue regarding these datasets is that they contain many grammatical and dictation errors. Since the language does not have an excellent tool to preprocess those data, the datasets need to be cleaned or require manual preprocessing. To better understand the syntactic and semantic nature of the Kurdish language and have an adequate dataset, our research group collected texts from news headlines written by academic people and contained small numbers of errors. The dataset is suitable for performing text classifications and achieving satisfactory results.

2. Data Description

The Kurdish language belongs to the Indo-Iranian family of Indo-European languages. It is well-known to be a close relative to the Persian language. The speakers span the intersections of Iran, Turkey, Iraq, and Syria. The Kurdish language is one of the official languages in Iraq and has regional status in Iran. The language has 40 million speakers [4]. Central Kurdish (Sorani) and Northern Kurdish (Kurmanji) are two of the main dialects of the Kurdish language [5]. However, there are other minor dialects, such as Gorani (Hawrami), spoken in some residential settings in Iraq and Iran, and Zazaki, which is used in Turkey [6]. Historically, many styles of the alphabet have been used for writing Kurdish, namely Cyrillic, Armenian, Latin, and Arabic. The dataset is the Sorani dialect which has 36 letters as vowels and constants [7], as shown in Table 1.

Table 1
Kurdish vowels and consonant Letters (Sorani Dialect).

Constants Letters	Constants Letters in Latin	Vowels Letters	Vowels Letters in Latin
ئ	a	ا	a
ب	b	ه	e
پ	p	و	U
ت	t	ۆ	O
ج	c	وو	ừ
چ	ç	ی	i
ح	h’	ێ	ê
خ	x		
د	d		
ر	r		
ڕ	rr		
ز	z		
ژ	j		
س	s		
ش	ş		
ع	ë		
غ	x		
ف	f		
ڤ	v		
ق	q		
گ	g		
ک	k		
ل	l		
ڵ	ll		
م	m		
ن	n		
ه	h		
و	w		
ی	y		

The letters in this language do not have capitalization forms, which are written starting from the right-hand side [8]. The Sorani dialect is distinguished by its lack of gender. In Sorani’s writing, possessive pronouns, definiteness markers, enclitics, and postpositions are used every time they are inserted as suffixes [9,10]. Furthermore, it contains two tenses, past and present, and singular and plural cases, but with complex morphology [11]. As for the future, the language benefits from its auxiliary verbs to denote actions that will occur in this period. The language is highly inflectional due to many affixes and clitics [12]. Jugal (2014) states that Sorani does not apply gender or grammatical case for its nominals. Although, it has an entire article marking system for definite, indefinite, and demonstrative in singular and plural forms [13]. Regarding Verb, Kurdish has around 300 single-word verbs, which are inflected based on the personal pronouns, which include (first (singular-plural), second (singular-plural), third (singular-plural)), tense(past, present, future), aspect(indefinite, perfect, progressive, imperfective), and mood (indicative, subjunctive, conditional) [14]. The Kurdish language employs compound construction forms to produce new vocabulary, namely (Noun + Verb), (Adjective + Verb), and (Preposition + Verb) forms [15], as shown in Table 2.

Table 2
Compound Verb construction (Sorani Dialects).

No	Construction	Example	Translation
1	Noun + Verb	ندرک نان = ندرک + نان	To make bread
2	Adjective + Verb	ندرکاپ = ندرک + کاپ	To purify
3	Preposition + Verb	ندرکڵەه = ندرک + ڵەه	To turn on

Regarding syntax, the Kurdish language follows subject-object-verb (SOV) order. Since the language is a pro-drop or null subject, thus, the removal of the subject in a sentence will create zero effects on its meaning [16]. The instances are explained as shown in Table 3:

Table 3
Samples of Kurdish Sentences (Sorani Dialects).

No	Sentence with Subject	Sentence without subject
1	تێوەد شۆخ میدازائ نم (I love freedom)	تێوەد شۆخ میدازائ (I love freedom)
2	ادوائ نایناکەڵوگ مارائ و دازائ (Azad and Aram watered the flowers)	ادوائ نایناکەڵوگ (they watered the flowers)
3	تشۆرف یەکەڵیابۆم ەکڕوک (the boy sold the mobile)	تشۆرف یەکەڵیابۆم (he sold the mobile)

It can be seen that in Table 3, The words (“نم”, “مارائ و دازائ”, and “ەکڕوک”) serve as subjects in the examples. Once they are omitted from the sentences, the meaning of the sentences has not been affected by their removal. Due to this case, the Kurdish language is recognized as a null subject language.

3. Data Collection

Technological advancements today have made it possible for news to spread worldwide. News agencies have to cover many things daily due to the tremendous change in the world's state. News in various categories is bombarded on the internet. Every news agency broadcasts, reports or writes fancy headlines to incite users when an incident occurs worldwide. Designing a model which can categorize the news headline is an essential step. An excellent dataset is required to train such a model. In this study, the total number of headlines is 50,000. Samples were collected from many websites such as Rudaw, Payam, Knnc, Kurdsat, etc. The samples are equally distributed across five classes (social, sport, science, health, and economy), as shown in Table 4. The Number and Percentage of Collected Data according to the *channels are shown in* Table 5.

Table 4
Number and Percentage of Collected Data according to the categories.

Class	No. of Samples	No. of Channels	Channels	Percentage
economic	10.000	8	GaliKurdstan (www.gksat.tv)	3.61%
			K24 (www.kurdistan24.net/ckb)	62.18%
			Kurdistantv (https://kurdistantv.net)	16.85%
			Kurdstat (www.kurdsat.tv)	3.47%
			Payamtv (www.peyam.net)	2.71%
			Rudaw (www.rudaw.net/sorani)	0.13%
			Xendan (www.xendan.org)	4.41%
			Xelk (https://xelk.org)	6.64%

(*continued on next page*)

Table 4 (*continued*)

Health	10000	14	Government (https://gov.krd)	1.06%
			K24 (www.kurdistan24.net/ckb)	17.91%
			Kurdistantv (https://kurdistantv.net)	12.91%
			Kurdstat (www.kurdsat.tv)	2.22%
			Payamtv (www.peyam.net)	3.61%
			Jamawar (www.jamawarnews.com)	0.19%
			Knnc (www.knnc.net)	2.42%
			Xelk (https://xelk.org)	3.51%
			Kurdiu (www.kurdiu.org/ku)	14.21%
			Politic press (https://politicpress.com)	20.67%
			Rachlaken (www.rachlaken.com)	2.22%
			Sharpress (www.sharpress.net)	1.49%
			Wishe (www.wishe.net)	10%
			Xwakurk (www.xwakurk.com)	7.52%
Science	10000	18	Al-ashraq (https://aleshraqtv.iq)	3.12%
			Bn24 (https://bn24.org)	0.22%
			Chawder (https://chawder.org)	0.91%
			GaliKurdstan (www.gksat.tv)	3.61%
			K24 (www.kurdistan24.net/ckb)	1.78%
			Khaktv (www.khaktv.com)	5.53%
			Kitn (https://kitn.net)	3.43%
			Kurdistantv (https://kurdistantv.net)	6.82%
			Millatpress (www.milletpress.com)	2.39%
			NRT (www.nrttv.com)	4.69%
			Payamtv (www.peyam.net)	2.73%
			Politic press (https://politicpress.com)	16.75%
			Shanpress (www.shanpress.com)	0.99%
			Westga (https://westganews.net)	6.67%
			Xelk (https://xelk.org)	3%
			Xendan (www.xendan.org)	8.82%
			Xwakurk (www.xwakurk.com)	23.02%
			Zagros (https://zagrosn.com)	5.52%
Social	10000	15	Awene (https://www.awene.com)	1.81%
			Dwaroj (https://dwaroj.net)	0.21%
			Government (https://gov.krd)	0.48%
			Gulan (www.gulanmedia.com)	1.99%
			Harem (https://haremnews.com)	1.01%
			Hengaw (https://hengaw.net)	0.61%
			K24 (www.kurdistan24.net/ckb)	7.54%
			Khaktv (www.khaktv.com)	5.29%
			Millatpress (www.milletpress.com)	5.37%
			Rojnews (https://rojnews.news)	12.97%
			Socialsuli (https://socialsuli.com)	2.01%
			Westga (https://westganews.net)	10.01%
			Wishe (www.wishe.net)	10.01%
			Xelk (https://xelk.org)	39.11%
			Xendan (www.xendan.org)	1.58%
Sport	10000	5	GaliKurdstan (www.gksat.tv)	3.61%
			K24 (www.kurdistan24.net/ckb)	60.31%
			Kurdistantv (https://kurdistantv.net)	24.01%
			Payamtv (www.peyam.net)	2.9%
			Xelk (https://xelk.org)	9.17%

Table 5
Number and Percentage of Collected Data according to the channels.

No.	Channels	Total percentage	Categories	Percentage for each class
1	GaliKurdstan (www.gksat.tv)	2.166%	1. Economic 2. Science 3. Sport	3.61% 3.61% 3.61%
2	K24 (www.kurdistan24.net/ckb)	29.944%	1. Economic 2. Health 3. Science 4. Social 5. Sport	62.18% 17.91% 1.78% 7.54% 60.31%
3	Kurdistantv (https://kurdistantv.net)	12.118%	1. Economic 2. Health 3. Science 4. Sport	16.85% 12.91% 6.82% 24.01%
4	Kurdstat (www.kurdsat.tv)	1.138%	1. Economic 2. Health	3.47% 2.22%
5	Payamtv (www.peyam.net⟩)	2.390%	1. Economic 2. Health 3. Science 4. Sport	2.71% 3.61% 2.73% 2.9%
6	Rudaw (www.rudaw.net/sorani)	0.026%	1. Economic	0.13%
7	Xendan (www.xendan.org)	2.962%	1. Economic 2. Science 3. Social	4.41% 8.82% 1.58%
8	Xelk (https://xelk.org)	12.286%	1. Economic 2. Health 3. Science 4. Social 5. Sport	6.64% 3.51% 3% 39.11% 9.17%
9	Government (https://gov.krd)	0.308%	1. Health 2. Social	1.06% 0.48%
10	Jamawar (www.jamawarnews.com)	0.038%	1. Health	0.19%
11	Knnc (www.knnc.net)	0.484%	1. Health	2.42%
12	Kurdiu (www.kurdiu.org/ku)	2.842%	1. Health	14.21%
13	Politic press (https://politicpress.com)	7.484%	1. Health 2. Science	20.67% 16.75%
14	Rachlaken (www.rachlaken.com)	0.444%	1. Health	2.22%
15	Sharpress (www.sharpress.net)	0.298%	1. Health	1.49%
16	Wishe (www.wishe.net)	4.002%	1. Health 2. Social	10% 10.01%
17	Xwakurk (www.xwakurk.com)	6.108%	1. Health 2. Science	7.52% 23.02%
18	Al-ashraq (https://aleshraqtv.iq)	0.624%	1. Science	3.12%
19	Bn24 (https://bn24.org)	0.044%	1. Science	0.22%
20	Chawder (https://chawder.org)	0.182%	1. Science	0.91%
21	Khaktv (www.khaktv.com)	2.164%	1. Science 2. Social	5.53% 5.29%

(*continued on next page*)

Table 5 (*continued*)

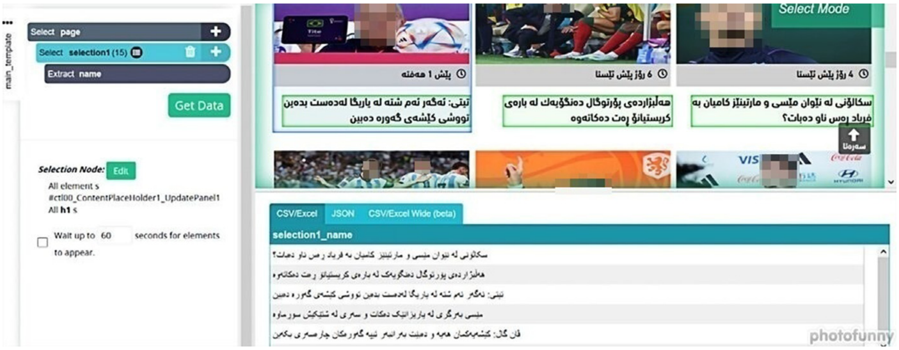
No.	Channels	Total percentage	Categories	Percentage for each class
22	Kitn (https://kitn.net)	0.686%	1. Science	3.43%
23	Millatpress (www.milletpress.com)	1.552%	1. Science 2. Social	2.39% 5.37%
24	NRT (www.nrttv.com)	0.938%	1. Science	4.69%
25	Shanpress (www.shanpress.com)	0.198%	1. Science	0.99%
26	Westga (https://westganews.net)	3.336%	1. Science 2. Social	6.67% 10.01%
27	Zagros (https://zagrosn.com)	1.104%	1. Science	5.52%
28	Awene (https://www.awene.com)	0.362%	1. Social	1.81%
29	Dwaroj (https://dwaroj.net)	0.042%	1. Social	0.21%
30	Gulan (www.gulanmedia.com)	0.398%	1. Social	1.99%
31	Harem (https://haremnews.com)	0.202%	1. Social	1.01%
32	Hengaw (https://hengaw.net)	0.122%	1. Social	0.61%
33	Rojnews (https://rojnews.news)	2.594%	1. Social	12.97%
34	Socialsuli (https://socialsuli.com)	0.402%	1. Social	2.01%

4. Experimental Design, Materials and Methods

On the internet, different types of data are available; in this era, the dataset collection is text. For text data gathering, various methods and tools are proposed. The ParsHub tool and the BeautifulSoup library has been used to collect news headlines. The following eight steps should be followed to obtain the data using ParsHub, as shown below:

1. Download: https://www.parsehub.com/quickstart
2. Sign in: using a registered email account
3. New Project: Create a new project for storing the texts
4. Add Link: Click on start project on this URL
5. Select Headlines: Select the headlines on the webpage.
6. Specify PageNnumbers: specify the number of pages you want to collect headlines from them.
7. Get Data: Start collecting the data
8. Export Data: Dataset is exported as a XLSX file format.

As shown in the above steps, the first step is installing ParsHbu software for collecting the texts. The second step is signing in with an email account. The third step is creating a new project. The fourth step is adding the URL to the page intended to collect data. The fifth step is selecting some headlines, as shown in Fig. 1. Notably, it is imperative to select three headlines, and the program will automatically select the others within the page based on the researcher's choice.



Selection Node:
All element s
#ctl00_ContentPlaceHolder1_UpdatePanel1
All **h1** s

□ Wait up to 60 seconds for elements to appear.

تیتی: ئەگەر ئەم شتە لە یاریگا لەدەست بدەین تووشی کێشەی گەورە دەبین

هەڵبژاردەی پۆرتوگال دەنگۆیەك لە بارەی کریستیانۆ ڕەت دەکاتەوە

سکالۆنی لە نێوان مێسی و مارتینێز کامیان بە فریاد ڕەس ناو دەبات؟

selection1_name

سکالونی له نیوان منسی و مارتینیز کامیان به فریاد رص ناو دهات؟

هەلبزاردەی پورتوگال دەنگویەک لە بارەی کریستیانو رەت دەکاتەوە

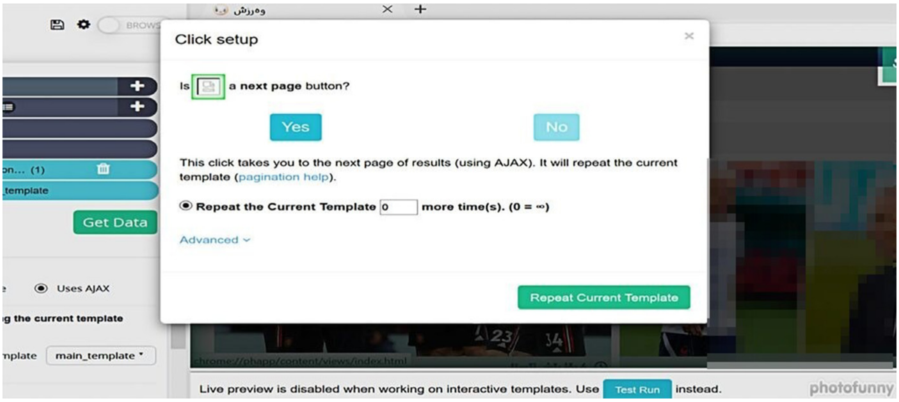
تیتی: ئەگەر ئەم شتە لە یاریگا لەدەست بدەین تووشی کێشەی گەورە دەبین

میسی بەرگری لە یاریزانیک دەکات و سەری لە شتێکیش سوڕماوە

ڤان گال: کێشەیەکمان هەیە و دەبێت بەرانبەر ئەیە گەورەکان چارەسەری بکەین

Fig. 1. Headline selection.

In the sixth step, we specify the number of pages from the website we will extract headlines, as shown in Fig. 2. Using this software, users can extract texts from 200 pages on a website.



Click setup

Is [] a next page button?

This click takes you to the next page of results (using AJAX). It will repeat the current template (pagination help).

● Repeat the Current Template 0 more time(s). (0 = ∞)

● Uses AJAX

g the current template

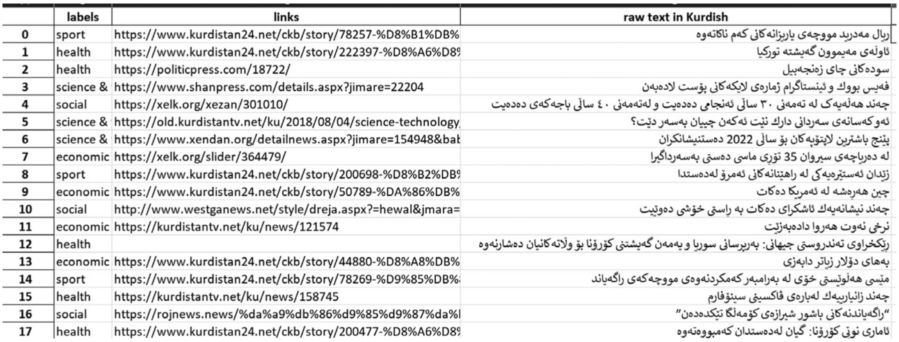
nplate main_template ▾

chrome://phapp/content/views/index.html

Live preview is disabled when working on interactive templates. Use Test Run instead.

Fig. 2. Specifying the number of pages.

The last step is exporting the headlines as a XLSX file format, as shown in Fig. 3.



	labels	links	raw text in Kurdish
0	sport	https://www.kurdistan24.net/ckb/story/78257-%D8%B1%DB%	ریال مەدرید مووچەی یاریزانەکانی کەم ناکاتەوە
1	health	https://www.kurdistan24.net/ckb/story/222397-%D8%A6%D8%	ئاوڵەی مەیموون گەیشتە تورکیا
2	health	https://politicpress.com/18722/	سودەکانی چای زەنجەبیل
3	science &	https://www.shanpress.com/details.aspx?jimare=22204	فەیس بووك و ئینستاگرام ژمارەی لایکەکانی پۆست لادەبەن
4	social	https://xelk.org/xezan/301010/	چەند هەڵەیەک لە تەمەنی ٣٠ ساڵی ئەنجامی دەدەیت و لەتەمەنی ٤٠ ساڵی باجەکەی دەدەیت
5	science &	https://old.kurdistantv.net/ku/2018/08/04/science-technology,	ئەوکەسانەی سەردانی دارك نێت ئەکەن چییان بەسەر دێت؟
6	science &	https://www.xendan.org/detailnews.aspx?jimare=154948&bab	پێنج باشترین لاپتۆپەکان بۆ ساڵی 2022 دەستنیشانکران
7	economic	https://xelk.org/slider/364479/	لە دەریاچەی سیروان 35 تۆڕی ماسی دەستی بەسەرداگیرا
8	sport	https://www.kurdistan24.net/ckb/story/200698-%D8%B2%DB%	زێدان ئەستێرەیەکی لە راهێنانەکانی ئەمرۆ لەدەستدا
9	economic	https://www.kurdistan24.net/ckb/story/50789-%DA%86%DB%	چین هەرەشە لە ئەمریکا دەکات
10	social	http://www.westganews.net/style/dreja.aspx?=hewal&jmara=	چەند نیشانەیەك ئاشکرای دەکات بە ڕاستی خۆشی دەوێیت
11	economic	https://kurdistantv.net/ku/news/121574	نرخی نەوت هەروا دادەبەزێت
12	health		رێکخراوی تەندروستی جیهانی: بەرپرسانی سوریا و یەمەن گەیشتنی کۆرۆنا بۆ وڵاتەکانیان دەشارنەوە
13	economic	https://www.kurdistan24.net/ckb/story/44880-%D8%A8%DB%	بەهای دۆلار زیاتر دابەزی
14	sport	https://www.kurdistan24.net/ckb/story/78269-%D9%85%DB%	مێسی هەڵوێستی خۆی لە بەرامبەر کەمکردنەوەی مووچەکەی راگەیاند
15	health	https://kurdistantv.net/ku/news/158745	چەند زانیارییەك لەبارەی ڤاکسینی سینۆفارم
16	social	https://rojnews.news/%da%a9%db%86%d9%85%d9%87%da%l	"ڕاگەیاندنەکانی باشور شیرازەی کۆمەڵگا تێکدەدەن"
17	health	https://www.kurdistan24.net/ckb/story/200477-%D8%A6%D8%	ئاماری نوێی کۆرۆنا: گیان لەدەستدان کەمبووەتەوە

Fig. 3. Sample of Corpus in XLSX.

Additionally, because ParsHub allows users to extract data several times, we used the BeautifulSoup has been used to crawl the remaining data for the specified dataset. Researchers can use BeautifulSoup's Python library for data collection using the code below. import requests from bs4 import BeautifulSoup link = 'https://www.xendan.org/

babetakan.aspx?babet=8&title=ئابوری’ r = requests.get(link) soup = BeautifulSoup(r.content, ’html.parser’) text = soup.findAll(class_=’card-container’) texts = [i.texts for i in text] df = pd.DataFrame(np.array(texts), columns=[’text’]) df.to_csv(’data.xlsx)

5. Dataset Preprocessing

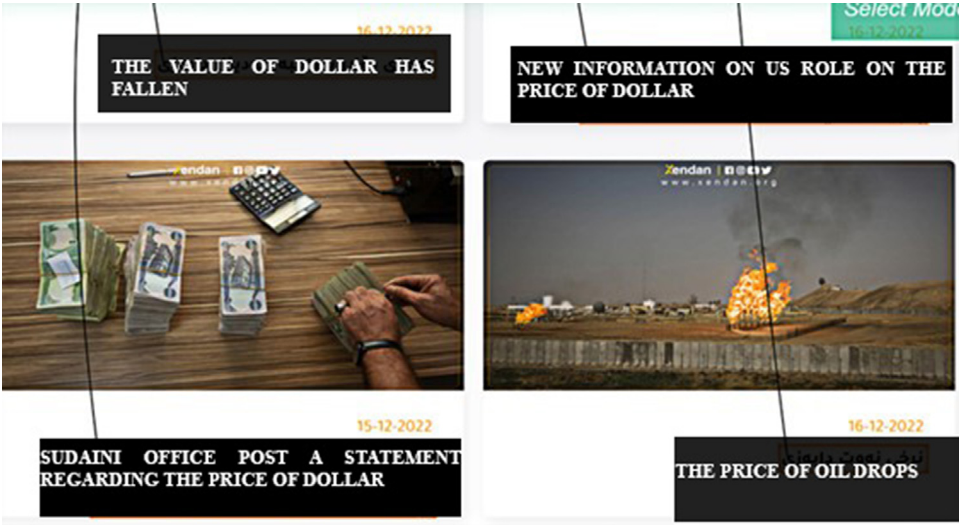
One of the most important steps after collecting the dataset is preprocessing. In the Kurdish language, the preprocessing steps for Kurdish data were obtained online, includes removing non-Kurdish words, special characters, elongation (letter repetition), symbols, stop words and ineffective numbers. Following that, we tokenized the texts in the dataset. It is crucial pointing out that word tokenization is also challenging due to the nature of the Kurdish language, which is purely morphological. Thus, the language requires its unique tool for performing such tasks. Word tokenization is another process acquired from using KLPT (Kurdish Language Processing Toolkit) [2]. This tool tokenizes Kurdish texts according to the morphological features of the language. The word-tokenization feature helps find the stem of the verbs, as shown in Table 6.

Table 6
Sentence-pre-processing.

No	Preprocessing method	Raw Text in Kurdish	Raw Text Translation in English	Preprocessed Text in Kurdish	Preprocessed Text Translation in English
1	removing non-Kurdish words	کۆمپانیای Xiaomi چوار ئامێری نوێی نمایش کرد	The Xiomi company displayed four new devices	کۆمپانیای چوار ئامێری نوێی نمایش	The company displayed four new devices
2	special characters	بۆچی هەندێك لە کارمەندانی تەندروستی تووشی کۆرۆنا نابن؟	Why don`t some of the hospital workers get covid?	بۆچی هەندێك کارمەندانی تەندروستی کۆرۆنا نابن	Why don`t some of the hospital workers get covid
3	elongation (letter repetition)	دایکان منداڵەکانیان زۆر خۆۆۆۆۆۆشدەوێت	Mothers love their children verrrrrry much	دایکان منداڵەکانیان خۆشدەوێت	Mothers love their children very much
4	symbols	نرخی بەرمیلێک نەوتی خاو گەیشتە 46$ دۆلار و 28 سەنت	The price of one Barrel of oil reaches $46 dollars and 28 cents	نرخی بەرمیلێک نەوتی خاو گەیشتە 46$ دۆلار و 28 سەنت	The price of one Barrel of oil reaches 46 dollars and 28 cents
5	stop words	بۆ ئەوانەی ئۆتۆمبیلی	For those who	ئۆتۆمبیلی	Automatic car
		ئۆتۆماتیکیان پێیە پیویستە ئەم زانیارییانە بزانن	own automatic cars, they need to know the following information	ئۆتۆماتیکیان پێیە پیویستە ئەم زانیارییانە بزانن	owners need to know the following information.
6	Ineffective numbers	گرانترین 15 مادده لە جیهاندا	The top 15 and most expensive materials in the world	گرانترین مادده لە جیهاندا	The most expensive materials in the world
7	Tokenization	هەموو بە خۆشی ڕێکەوتن	They made peace with each other	['ـــهەمووـــ', 'ـــبەـــ', 'خۆش_ی_', 'ـــ_ڕێکـ کەوتنـــ_']	They made peace with each other
8	Stemming	بەو مەرجە قاوە بۆ تەندروستی دڵ باشە	The coffee is good for your heart	بەو مەرجە قاوە بۆ تەندروستی دڵ باش	The coffee be good for your heart

6. Dataset Labeling

Dataset labeling has a significant effect on machine learning and deep learning tools. A dataset can be labeled in three methods. The first method involves reading and understanding texts through human effort. The second method is automatic labeling, which uses pre-trained annotation models to annotate the text. Semi-automatic labeling combines both human and automatic labeling as a third step. In this work, automatic labeling is used for that purpose. Thus, the annotation process is independent of human effort. Due to ParsHub's automatic category extraction, the category in which the news was published can be determined. In other words, it uses the tags written under each news headline, as shown in Fig. 4.



16-12-2022
THE VALUE OF DOLLAR HAS FALLEN

16-12-2022
NEW INFORMATION ON US ROLE ON THE PRICE OF DOLLAR

15-12-2022
SUDAINI OFFICE POST A STATEMENT REGARDING THE PRICE OF DOLLAR

16-12-2022
THE PRICE OF OIL DROPS

Fig. 4. Label selection in the Parshub using node.

Ethics Statement

This manuscript contains data acquired by using two web scraping tools. Regarding, the Terms of service (ToS), all web resources listed in Table 4 and used in the dataset allow for scraping and distributing data. Due to the fact that Kurdish news websites are free and open to everyone, thus, allowing articles to be scrapped. We confirm that data are not used for any fraudulent purposes, such as making profits (e.g., business), DDoS, data theft, or any other bad intentions. Regarding copyright, news reports are published on public news websites that can be accessed easily by anyone who has access to the Internet, and It is similar to search engines which use bots to index Web pages. It is important to note that the data in this article belong to the news websites. In this dataset, the privacy rights of individuals are protected. Even though the data is free and available to everyone, we have removed each website's identity (Uniform Resource Locator URL). The data collection process did not involve the collection of personal information. We removed identities from the dataset if they appeared in it. The dataset was neutralized according to legal and ethical guidelines and policies. The purpose of this task is to build a dataset that can classify news texts into multiple classes, not to target users or channels or any political parties. The data in the dataset were obtained from publicly available news channels. There is no scraping of data directly from social media platforms (such as Twitter and Facebook). Thus, it does not violate their scrapping policies.

Declaration of Competing Interest

The authors declare that the work described in this article has not been influenced by competing financial interests or personal relationships.

Data Availability

Kurdish News Dataset Headlines (KNDH) through Multiclass Classificatio (Original data) (Mendeley Data).

CRediT Author Statement

Soran Badawi: Supervision, Data curation, Conceptualization, Methodology, Visualization, Project administration, Funding acquisition, Writing – original draft, Writing – review & editing; **Ari M. Saeed:** Software, Formal analysis, Investigation, Resources, Supervision, Validation, Writing – review & editing; **Sara A. Ahmed:** Software, Writing – review & editing; **Peshraw Ahmed Abdalla:** Software, Formal analysis, Investigation, Resources; **Diyari A. Hassan:** Validation, Writing – review & editing.

Acknowledgments

The authors would like to thank the University of Halabja and the Charmo University for providing all the facilities needed for conducting this research work.

References

[1] S. Badawi, A. Mohammed, S. Badawi and A. Mohammed, "Kurdish News Dataset Headlines (KNDH) through Multiclass Classification, V2, 2023. https://doi.org/10.17632/kb7vvkg2th.2.

[2] P.A. Abdalla, A.M. Qadir, M.Y. Shakor, A.M. Saeed, A.T. Jabar, A.A. Salam, et al., A vast dataset for Kurdish handwritten digits and isolated characters recognition, Data in Brief 47 (2023) 109014, doi:10.1016/j.dib.2023.109014.

[3] A.M. Saeed, S.R. Hussein, C.M. Ali, T.A. Rashid, Medical dataset classification for Kurdish short text over social media, DataBrief 42 (2022) 108089, doi:10.1016/j.dib.2022.108089.

[4] A.M. Saeed, A.N. Ismael, D.L. Rasul, R.S. Majeed, T.A. Rashid, Hate speech detection in social media for the Kurdish Language, in: Proceedings of the ICR'22 International Conference on Innovations in Computing Research, Springer, 2022, pp. 253–260.

[5] S. Ahmadi, H. Hassani, J.P. McCrae, Towards electronic lexicography for the Kurdish language, in: Proceedings of the Sixth Biennial Conference on Electronic Lexicography (eLex), eLex, 2019, 2019.

[6] H.J.L.R. Hassani, Evaluation, BLARK for multi-dialect languages: towards the Kurdish BLARK, Lang. Resour. Eval. 52 (2018) 625–644, doi:10.1007/s10579-017-9400-0.

[7] A. Buran, Kurds and Kurdish Language, J. Turkish Stud. 6 (3) (2011) 43–57.

[8] K. Jacksi, I. Ali, The Kurdish Language corpus: state of the art, Sci. J. Univ. Zakho 11 (1) (2023) 125–131, doi:10.25271/sjuoz.2023.11.1.1123.

[9] H. Veisi, M. MohammadAmini, H. Hosseini, Toward Kurdish language processing: experiments in collecting and processing the AsoSoft text corpus, Dig. Scholarsh. Human. 35 (1) (2020) 176–193, doi:10.1093/llc/fqy074.

[10] P. Aliabadi, M.S. Ahmadi, S. Salavati, K.S. Esmaili, Towards building kurdnet, the kurdish wordnet, in: Proceedings of the Seventh Global Wordnet Conference, 2014, pp. 1–6.

[11] S. Salavati, S. Ahmadi, Building a lemmatizer and a spell-checker for Sorani Kurdish, ArXiv.org. (2018). doi:10.48550/arXiv.1809.10763. Accessed April 17, 2023.

[12] S. Ahmadi, KLPT–Kurdish language processing toolkit, in: Proceedings of Second Workshop for NLP Open Source Software (NLP-OSS), Association for Computational Linguistics, 2020, pp. 72–84.

[13] M.J. Rasheed, A comparative overview of Dutch and Kurdish grammatical gender system, Int. J. Soc. Sci. Educ. Stud. 9 (1) (2022).

[14] G. Walther, B. Sagot, Developing a large-scale lexicon for a less-resourced language: general methodology and preliminary experiments on Sorani Kurdish, in: Proceedings of the 7th SaLTMiL Workshop on Creation and Use of Basic Lexical Resources for Less-Resourced Languages (LREC 2010 Workshop), 2010.

[15] S. Ahmadi, Hunspell for Sorani Kurdish Spell Checking and Morphological Analysis, arXiv preprint arXiv:.06374 (2021). https://doi.org/10.48550/arXiv.2109.06374.

[16] S. Gündoğdu, E. Öpengin, G. Haig, E. Anonby, Current Issues in Kurdish linguistics, University of Bamberg Press, 2019.