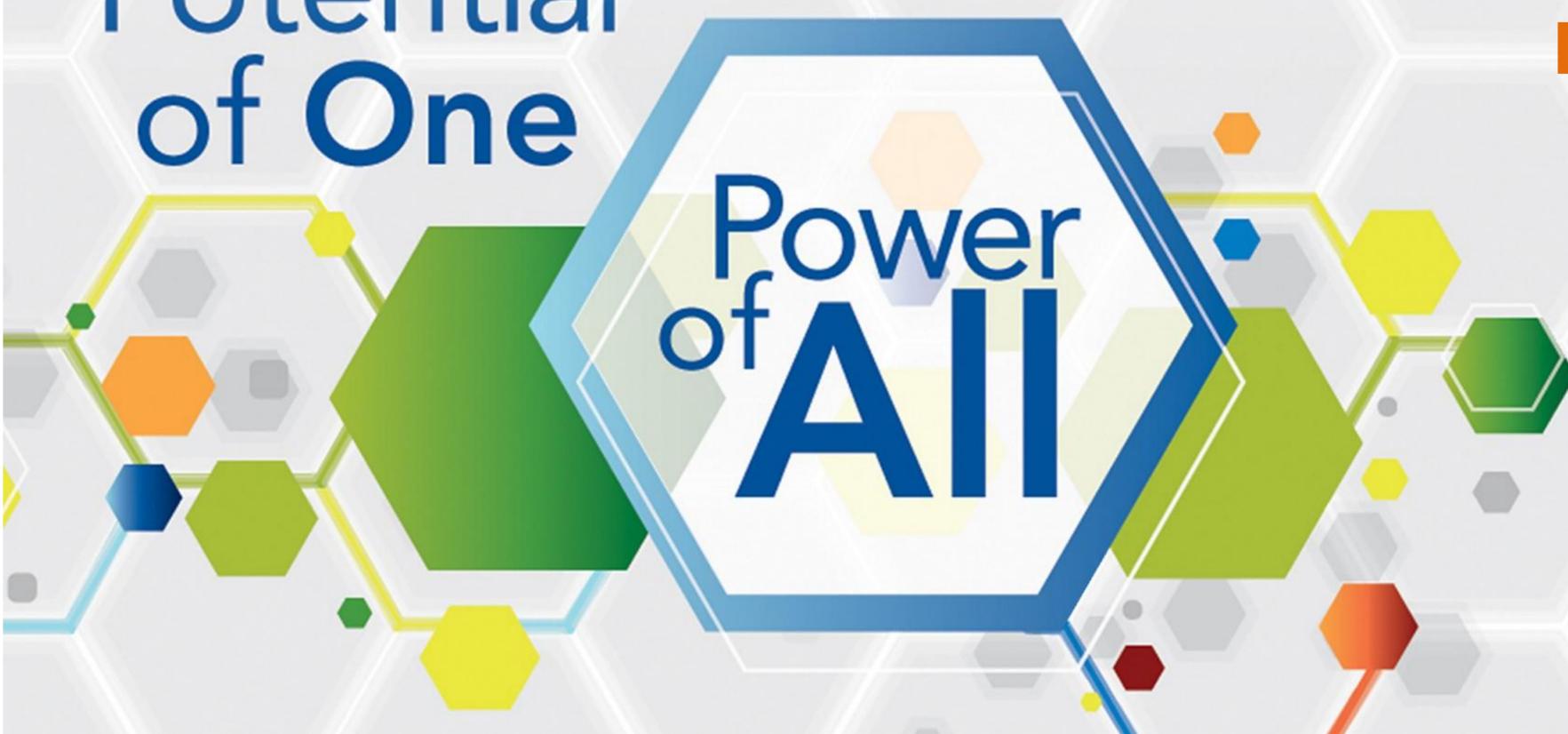


A way to fetch user reviews from iTunes using SAS®

Jiawen Liu
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Potential
of One

Power
of
All



A way to fetch user reviews from iTunes using SAS®

Jiawen Liu¹, Mantosh Kumar Sarkar², Meizi Jin², Dr. Goutam Chakraborty²

¹ Qualex Consulting Services, Inc. ² Oklahoma State University

Abstract

This poster simply develops new macros, which allow you to scrape user textual reviews from Apple iTunes store for iOS applications using App ID and country code. It not only can let you understand your customers' experiences and needs, but also can let you be aware of your competitors' user experiences. The macros use search API in iTunes and PROC HTTP in SAS to extract, transform, and create SAS datasets.

Method

Step 1: How to locate iOS App ID

Launch iTunes -> Go to App store -> Find desired App -> From the dropdown list next to "Download" button, choose "Copy the link" -> Paste in Notepad. The numbers after "id" is App Id.

Step 2: How to find "Country ID"

Here in this poster, we only take Country='US' for demonstration. All other country IDs can be found in the below link.

http://en.wikipedia.org/wiki/ISO_3166-1_alpha-2

Step 3: Communicate with iTunes

%getrev(appid=, country=) (Display A) is used to send request and get response from iTunes. The response can be received in XML and JSON format. SAS has a built-in XML engine to read well-structured XML file. Hence, the example here is saved in XML format. Due to iTunes allowance, up to 10 pages user reviews can be accessed and fetched.

Step 4: Data cleaning and appending

Next, %cpllist will convert XML data into SAS datasets. And then, a few data cleaning steps are processed as shown in Display B. After above steps have been done, all SAS datasets will append into one final dataset (Display C).

```
/*PART II: Data extraction, transformation, and appending*/
%macro cpllist();
%do i=1 %to 10;
libname myxml&i xml "C:\Jiawen\entry&i..xml";
libname apprev 'C:\Jiawen\data';
/*Above two lines will convert XML data into SAS datasets.
You also can create your own XML map to load the data.
Please refer to SAS XML User Guide for details*/
data apprev.CF&i;
informat POST_TIME RATING TITLE new_col;
input POST_TIME RATING TITLE new_col;
length POST_TIME $10 title $25 new_col $2000;
set myxml&i..entry;
new_col=SCAN(CONTENT0,1,"<");
POST_TIME=SUBSTR(UPDATED,1,10);
run;
```

```
PROC SQL;
CREATE TABLE apprev.mydata&i AS
SELECT ID,POST_TIME,RATING,TITLE,new_col AS REVIEW
FROM apprev.CF&i;
QUIT;
```

```
%end;
%mend cpllist;
```

Display A: %getrev()

```
/*PART I: Request iTunes*/
%macro getrev(appid,country);
%do n=1 %to 10 ;
/*iTunes only allows you to fetch up to 10 pages data.
You can customize your API URL of sorting function to
get your desired data. The default is sorted by "most recent"*/
filename entry&n "c:\jiawen\entry&n..xml";
/*SAS has a built-in XML engine to read XML data.
For more information, please refer to SAS XML User Guide*/
PROC HTTP
out=entry&n
url="http://itunes.apple.com/&&country/rss/customerreviews/page=&n/id=&appid/xml"
method="get"
ct="application/x-www-form-urlencoded";
run;
%end;
%mend getrev;
```

Display B: %cpllist for data cleansing

```
%macro merdata();
%do n=1 %to 10;
proc append base= apprev.mydata data=apprev.mydata&n;
run;
%end;
%mend merdata;
```

Display C: Data appending

Result

The final dataset (Display D) contains ID, POST_TIME, TITLE, RATING, and REVIEW. To protect user identity, personal information from final dataset have been omitted.

Obs	ID	POST_TIME	RATING	TITLE	REVIEW
1	9.2254E8	2014-01-08	1	Horrible waste of time. C	Dont bother using it
2	9.2251E8	2014-01-08	1	ADS? Really Microsoft??	God you're hopeless
3	9.2228E8	2014-01-08	3	Ok	It was ok then it was updated and now it's horrible... I will just stick to the computer version if this keeps up
4	9.2196E8	2014-01-07	5	PLEASE MAKE THIS UPDATE	I love Skype! I can talk to my boyfriend for forever, but I wish there was a way to add filters while chatting face to face!! That'd be awesome
5	9.2195E8	2014-01-07	5	Amazing	It can be slow sometimes but its worth getting. Good app
6	9.219E8	2014-01-07	1	No notifications	I have ensured that the notification setting for skype is on in the system settings. Still, zero notification when someone calls. Makes this app completely useless. Unbelievable.
7	9.219E8	2014-01-07	5	It's great	Amazing
8	9.2183E8	2014-01-07	2	OK but too expensive	This telephony/chat app works well but the in-app purchase for telephone minutes is way, I mean, WAY TOO expensive... It would be cheaper to help your loved ones and friend buy an iPhone and use iMessage and FaceTime.
9	9.2169E8	2014-01-07	1	Lags a ton	Messages come in late and I get no notification for incoming calls until I refresh skype, which is already too late. What happened? So much lag now.
10	9.2169E8	2014-01-07	3	Good but...	Needs some fixing. I know it's not my internet connection when this happens to me because the internet works fine on the computers in the house. So I don't think I should ever have to have failed calls over and over again. When I mean failed calls, I mean that my when I try to make a call to somebody, the Skype app shouldn't freeze up and make the other person goes mute until the call is dropped. This happens every so often. And you need to add group calling. Other than these two things, the app is great.

Display D: Final dataset (First 10 observations)

Terms of Use

The purpose of this application is for educational practice and non-profitable business use only. Be aware, for certain countries, please refer to terms and conditions on iTunes store before you use these macros.

Authors in this application are not responsible for any privacy violation when you apply this method.

contact

If you have any questions, please contact Jiawen Liu.

Email: jiawen.liu@qlx.com

Phone: +1 (980) 213 – 8416

Mail Address: 11900 Biscayne Blvd Suite 770
North Miami, FL 33181

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