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Script Python to transform bib file

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This Technical Report describes a script written in Python to transform a bib into a proprietary format. Open Portal ISTI obtains the bib file, and the property format is defined in the following sections. The property Sllab uses the format in the annual report of the activity of the laboratory.

Keywords: Latex, Bib, Bibtex, Python.

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Script Python to transform bib files

Tecnical Report

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keyword: latex, bib, bibtex, Python

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1 Abstract

This Technical Report describes a script written in Python [1] to transform a bib into a proprietary format. [Open Portal ISTI](#) provides the bib file, and the property format is defined in the following sections. The property [SIlab](#) uses the format in the annual report of the activity of the laboratory [2].

This Technical Report describes a script written in Python [1] to transform a bib in a proprietary format. The bib file is get by [Open Portal ISTI](#) and the property format is defined in the following sections. The property format is used by [SIlab](#) in the annual report of the activity of the laboratory [2].

2 Introduction

The [SIlab](#) annual report contains the main activities and the publications of the past year by the [SIlab](#) team. The number of publications and the necessary coherence between the bibliography and the short description of the papers has conduct the author to write a program to automatize the process. The chosen language is Python only for author's commodity, there was other good programming languages that could do this work well.

3 Proprietary Format

The proprietary format is a TeX string that is as follows.

3.1 Journal

- `\textbf{Title}: \href{https://openportal.isti.cnr.it/results?qv="PAPER TITLE"}{PAPER TITLE}`
- `\textbf{Authors}: the list of the authors`
- `\textbf{Journal}: the name of the journal`
- `\textbf{Publisher}: the name of the publisher`
- `\textbf{DOI}: \doix{DOI}`
- `\textbf{Abstract}: \textit{Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.}` `\cite{REF}`
- `\\ \vspace{5mm} \\`

3.2 Other publications (not journal)

- `\textbf{Title}: \href{https://openportal.isti.cnr.it/results?qv="PAPER TITLE"}{PAPER TITLE}`
- `\textbf{Authors}: the list of the authors`
- `\textbf{DOI}: \doix{DOI}`
- `\textbf{Abstract}: \textit{Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus.`

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- \\ \vspace{5mm} \\

4 Code

```
#!/bin/python
import sys, os
import re
import urllib.request

class key_values:
    def __init__(self, citekey, values):
        self.citekey = citekey
        self.values = values

def get_data(datastring):
    attributevalue = []
    start = 0
    stop = datastring.find("@")
    if stop > 0:
        datastring=datastring[start:stop]
    else:
        datastring = datastring[start:]
    stop = datastring.rfind("}")
    datastring=datastring[start:stop] #key, att1={txt1}, att2={txt2}.... last , can be present
    start = datastring.find("{")
    stop = datastring.find(",")
    citekey = datastring[start+1:stop]
    #from now starts attribute extrations
    cont = True #we suppose to have almost one attribute
    while cont:
        datastring = datastring[stop+1:]
        start = 0
        stop = datastring.find("}")
        analyzedstring = datastring[start:stop]
        analyzedstring = analyzedstring.strip()
        stop = analyzedstring.find("=")
        key = analyzedstring[start:stop]
        key = key.strip()
        start = analyzedstring.find("{")
        value = analyzedstring[start+1:]
        value = value.strip()
        attributevalue.append(key)
        attributevalue.append(value)
        stop = datastring.find(",")
        if stop == -1:
            cont = False
        else:
            stop = datastring.find("}")
            datastring = datastring[stop + 1:]
            stop = datastring.find(",")
    #print(len(attributevalue))
```

```

returnvalue = key_values(citekey , attributevalue)
return returnvalue

bibfile = sys.argv[1]
f = open(bibfile , "r")
recordstring = f.read()
classes = list(dict.fromkeys(re.findall('@(.*){ ', recordstring)))
recordstring=recordstring.replace('\n', ' ')
#clean from {\
recordstringcopy=recordstring
recordstring=""
idx = 0
graphdepth = 0
while idx <= len(recordstringcopy)-2:
    simplycopy = True
    if (recordstringcopy[idx] == "{"):
        graphdepth = graphdepth+1
    if (recordstringcopy[idx] == "}"):
        graphdepth = graphdepth-1

    skipcopy = False
    if ( ( (recordstringcopy[idx] == "{") & (graphdepth >= 3) ) or
        ( (recordstringcopy[idx] == "}") & (graphdepth >= 2) ) ):
        skipcopy = True
        if recordstringcopy[idx] == "{":
            recordstring = recordstring + "__open_graph__"
        if recordstringcopy[idx] == "}":
            recordstring=recordstring+"__close_graph__"
    if ((recordstringcopy[idx] == "@") & (graphdepth >= 1)):
        skipcopy = True
        recordstring = recordstring + "__at__"
    if skipcopy == False:
        recordstring=recordstring+recordstringcopy[idx]
    idx = idx+1

# recordarray=recordstring.split"
for classelementname in classes:
    fileToWrite = classelementname+".tex"
    stringToWrite = ""
    # To generate , if present
    # Title
    # Author(s)
    # per Journal: journal + publisher
    # DOI
    # abstract
    # citeref

    attributestoprint = ["title", "author", "doi", "abstract"]
    if classelementname == "article":
        attributestoprint = ["title", "author", "journal", "publisher", "doi", "abstract"]

    elementnametosearch = "@" + classelementname + "{"
    classelementstarts = [i for i in range(len(recordstring)) if recordstring.startswith(elem
for classelementstart in classelementstarts:
    #print(classelementname + " "+str(classelementstart))

```

```

substringstartswithelement = recordstring[classelementstart+1:]
stoptoken=substringstartswithelement.find("@")
if stoptoken > 1:
    substringstartswithelement = substringstartswithelement[:stoptoken]
keyvalue=get_data(substringstartswithelement)

#print("key "+keyvalue.key)
for idxatt in attributestoprint:
    for idx in range(int(len(keyvalue.values)/2)):
        #print(idx)
        if (keyvalue.values[2*idx] == idxatt):
            # reinsert graph
            txt = keyvalue.values[2 * idx + 1]
            txt = txt.replace("__open_graph__", "{")
            txt = txt.replace("__close_graph__", "}")
            txt = txt.replace("__at__", "@")
            txt = txt.replace("_", "\\_")
            txt = txt.replace("&", "\\&")
            attributetitletoprint = idxatt.capitalize()
            if attributetitletoprint == "Doi":
                attributetitletoprint = "DOI"
            if attributetitletoprint == "Author":
                if txt.find("and")>1:
                    attributetitletoprint = "Authors"
                if txt.find(",")>1:
                    attributetitletoprint = "Authors"
            stringprint = False
            if idxatt == "title":
                stringprint = True
                httppage = "https://openportal.isti.cnr.it/results?qv=\" + txt + "\"
                stringToWrite = stringToWrite+"\\textbf{"+attributetitletoprint+"}: \
                    httppage + "}{" + txt + "}"\\ \\n"
                #print(httppage)
                #contents = urllib.request.urlopen("\"+httppage+"\").read()
                #contents = urllib.request.urlopen("https://openportal.isti.cnr.it/re
            if idxatt == "doi":
                stringprint = True
                stringToWrite = stringToWrite+"\\textbf{"+attributetitletoprint+"}: \
            if idxatt == "abstract":
                stringprint = True
                stringToWrite = stringToWrite+"\\textbf{"+attributetitletoprint+"}: \
            if stringprint == False:
                stringToWrite = stringToWrite + "\\textbf{" + attributetitletoprint +
        #add cite key
        stringToWrite = stringToWrite + "\\cite{"+keyvalue.citekey+"}\\ \\vspace{5mm} \\ \\
with open(fileToWrite, 'w') as f:
    f.write(stringToWrite)

```

5 Conclusion and Future Works

The code does not face some peculiarity of TeX strings such as the presence of the underscore between dollars. This and others features will be implemented in future version of the code. The code is deployed in [GitHub](#).

References

- [1] S.F. Lott. *Modern Python Cookbook*. Packt Publishing, 2016.
- [2] Leone G. R., Righi M., Carboni A., Caudai C., Colantonio S., Kuruoglu E. E., Leporini B., Magrini M., Paradisi P., Pascali M. A., Pieri G., Reggiannini M., Salerno E., Scozzari A., Tonazzini A., Fusco G., Galesi G., Martinelli M., Pardini F., Tampucci M., Buongiorno R., Bruno A., Germanese D., Matarese F., Coscetti S., Coltelli P., Jalil B., Benassi A., Bertini G., Salvetti O., and Moroni D. Si-lab annual research report 2020. Technical report, ISTI Annual Report, ISTI-2021-AR/001, pp.1–38, 2021, 2021.