# CAREER CENTER PLATFORM

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ESPRIT

## *Introduction*

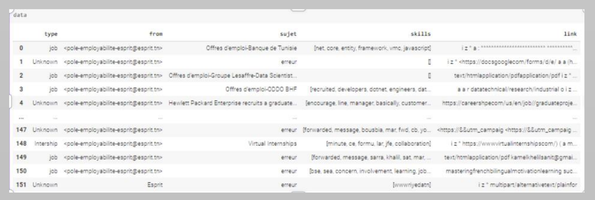
There is no deny that nowadays, the development of technology is so fast making the world a more convenient place to live, therefore traditional ways when it comes to job applications that waste a lot of time is no longer wanted. People can no longer go over several steps just to find relevant Job offers, plus other multiple steps to apply.
As a matter of course a platform simplifying all of that is very much needed. one where it accepts any type of document, and finds the best opportunities for you, whether you are still a college student looking for an internship or a fresh graduate looking for a great job.

## Data Understanding

### Student Dataset

**All the public informations found on their Student profiles**
**PERSONAL STATEMENT**
**description / headline**
**connectionCount / connectionDegree / connectionUrl / LINKS**
**linkedinProfile / imgUrl / linkedinSlesNavigatorUrl**
**EDUCATIONION school / schoolUrl / schoolDegree / schoolDateRange / school2 schoolDegree2 / schoolDateRange2**
**SKILLS allskills / skill1 / endorsement1,...., skill6 / endorsement6**
**CONTACT INFO userId / profileId / website / facebookUrl / email**
**IDENTITY SET firstName / LastName / fullName / birthday / location**
**EXPERIENCES company / companyUrl / companyWebsite / civilityFromDrobContact / websiteFromDropContact / qualificationFromDropContact /**

### Offer Dataset

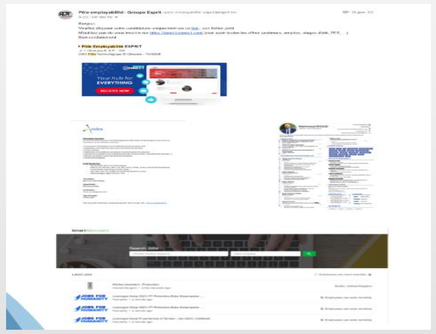


| | type | from | sujet | skills | link |
|---|---|---|---|---|---|
| 0 | job | <pole-employabilite-esprit@esprit.tn> | Offres d'emploi-Banque de Tunisie | [net, core, entity, framework, vmc, javascript] | i 2 ' a. ********** |
| 1 | Unknown | <pole-employabilite-esprit@esprit.tn> | erreur | [] | i 2 ' <https://docsgoogle.com/forms/d/e/ a a /h.. |
| 2 | job | <pole-employabilite-esprit@esprit.tn> | Offres d'emploi-Groupe Lesaffre-Data Scientist... | [] | text/htmlapplication/pdfapplication/pdf i 2 '... |
| 3 | job | <pole-employabilite-esprit@esprit.tn> | Offres d'emploi-ODOO BHF | [recruited, developers, dotnet, engineers, dat... | a a r datatechnicalresearch/industrial o i 2 .. |
| 4 | Unknown | <pole-employabilite-esprit@esprit.tn> | Hewlett Packard Enterprise recruits a graduate... | [encourage, line, manager, basically, customer... | https://careershpecom/us/en/job/graduatepro/e... |
| ... | ... | ... | ... | ... | ... |
| 147 | Unknown | <pole-employabilite-esprit@esprit.tn> | erreur | [forwarded, message, boubola, mail, fwd, cb, yo... | <https://&&utm_campaig <https://&&utm_campaig... |
| 148 | Internship | <pole-employabilite-esprit@esprit.tn> | Virtual Internships | [minute, ce, formu, lar, fe, collaboration] | i 2 ' https://www.virtualinternshipscom/) i a m... |
| 149 | job | <pole-employabilite-esprit@esprit.tn> | erreur | [forwarded, message, sarra, khalil, sat, mar... | text/htmlapplication/pdf ilamelkhelilsarit@gmai... |
| 150 | job | <pole-employabilite-esprit@esprit.tn> | erreur | [bse, sea, concern, invol-ement, learning, job... | masteringfrenchbilingualmotivationlearning suc... |
| 151 | Unknown | Esprit | erreur | [wwwmyedarn] | i 2 ' multipart/alternativetext/plainfor |

**type :** of the offer {job / summer Internship/PFE}
**from :** the email sender
**Sujet :** the purpose of the mail
**Skills:** the required experties
**link:** included links to submit application in

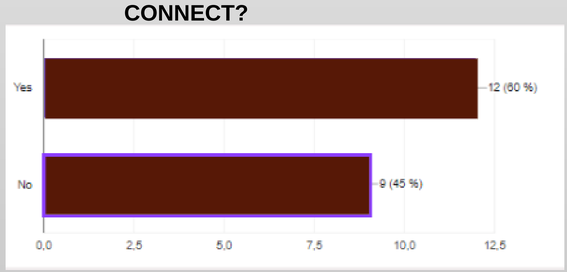
## Business Understanding & Analytical Approach

types of documents: Resume , diplome, certificate..
types of offers : summer internship/ pfe internship / job offers (full time/ part time/seasonal/temporary)
documents formats : pdf , SVG, PNG,JPEG,Word

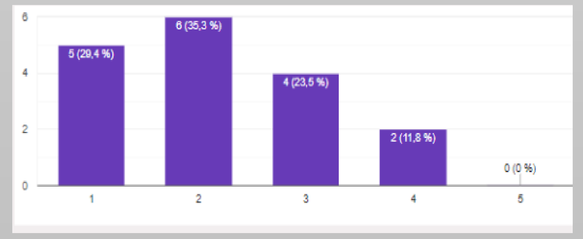


We questioned esprit students about the EP and Connect ESPRIT and if they are satisfied with its services :

**HAVE YOU EVER USED ESPRIT CONNECT?**




**IF SO, WERE YOU SATISFIED WITH THE SERVICES THEY PROVIDED?**




## Data Preparation

**In Student Dataset:**

- Manual and randomized feature selection (based on our knowledge of the problem and the data)
- Droping rows with "fullName" being Nan
- Merging 2 columns
- example : "degree1" and "degree2" into "degree" devised by !
- Created new function that detects nun ( since some columns are objects)

→ Profiling Dataset

- And for the most important feature which is the **skills** we did:
  1. Create a list containing the unique skills (upper case /all in English )
     => we reduced the size into its ¼
  2. Define a new dictionary based on the regrouping of related skills .

→ Matching Dataset

**In Offer Dataset:**

- ❑ removing ponctuation and such using NLP and stopwords by NLTK .
- ❑ using GENSIN library to transform full text into words .
- ❑ using Chatgpt to get personalized dictionary .

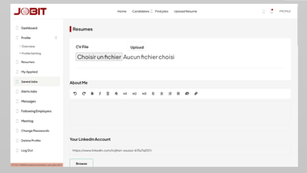
→ Profiling Dataset

- ❑ For the needed skills we did the same steps in the student dataset.
- ❑ Extracting the skills from the "description" scraped from LinkedIn

→ Matching Dataset

## Deployment & Feedbacks

- In the deployment we created our platform where each Student can sign up :


- Here each Student can upload his CV and provide the LinkedIn Profile

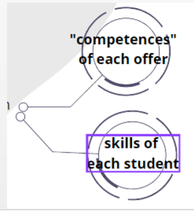
- After providing his personal informations each student can search for the convenient offers that matches his skills

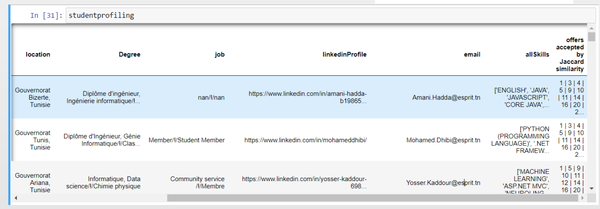

## Data Modeling & Evaluation

**Jaccard Similarity:**

calculates the **Jaccard** similarity between

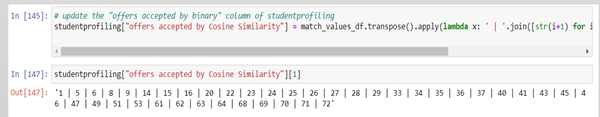
All the values are stored into a list .then we Choose the offers with a similarity > 0.7



| location | Degree | job | linkedinProfile | email | allSkills | offers accepted by Jaccard similarity |
|---|---|---|---|---|---|---|
| Gouvernorat Bizerte, Tunisie | Diplôme d'ingénieur, Ingénierie informatique/I... | nan/I/nan | https://www.linkedin.com/in/amani-hadda-b19865... | Amani.Hadda@esprit.tn | ['ENGLISH', 'JAVA', 'JAVASCRIPT', 'CORE JAVA',... | 1 \| 3 \| 4 \| 5 \| 9 \| 10 \| 11 \| 14 \| 16 \| 20 \| 2 |
| Gouvernorat Tunis, Tunisie | Diplôme d'Ingénieur, Génie Informatique/I/Clas... | Member/I/Student Member | https://www.linkedin.com/in/mohameddhibi/ | Mohamed.Dhibi@esprit.tn | ['PYTHON (PROGRAMMING LANGUAGE)', '.NET FRAMEW... | 1 \| 3 \| 4 \| 5 \| 9 \| 10 \| 11 \| 14 \| 16 \| 20 \| 2 |
| Gouvernorat Ariana, Tunisie | Informatique, Data science/I/Chimie physique | Community service /I/Membre | https://www.linkedin.com/in/yosser-kaddour-698... | Yosser.Kaddour@esprit.tn | ['MACHINE LEARNING', 'ASP.NET MVC', 'NO SQL MyS... | 1 \| 5 \| 9 \| 10 \| 11 \| 12 \| 14 \| 16 \| 20 \| |

**Cosine similarity:**
*Iterates through each offer and student to calculate their match value using
**cosine similarity** between the skills listed in their profiles
*These match values are stored into a sorted list then converted To a Dataframe
*In the end we will have a new column added to the student set containing the offers based on their index and separated by a pipe character .



```
In [145]: # update the "offers accepted by binary" column of studentprofiling
          studentprofiling["offers accepted by Cosine Similarity"] = match_values_df.transpose().apply(lambda x: ' | '.join([str(i+1) for i

In [147]: studentprofiling["offers accepted by Cosine Similarity"][1]

Out[147]: '1 | 5 | 6 | 8 | 9 | 14 | 15 | 16 | 20 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 33 | 34 | 35 | 36 | 37 | 40 | 41 | 43 | 45 | 4
          6 | 47 | 49 | 51 | 53 | 61 | 62 | 63 | 64 | 68 | 69 | 70 | 71 | 72'
```

**BERT-base- Uncased:**

1. Loading the Pre-trained BERT Model and Tokenizer
2. Defining the Encoding Function
3. Encoding Students
4. Encoding Offers
5. Finding the Best Matching Offer for Each Student
6. Filtering the Best 6 Matches

| BestMatches by bert |
|---|
| [42, 43, 9, 45, 8, 2] |
| [42, 43, 9, 45, 8, 2] |
| [42, 43, 9, 45, 2, 8] |

## Conclusion & Perspectives

In conclusion, our personalized matching system represents a significant step forward in the domain of student-employer connections. By moving away from the traditional broadcasting approach and adopting a data-driven, personalized methodology, we have demonstrated the potential to enhance the employability of students while facilitating more efficient and targeted job placements. Through the implementation of our system, we have successfully addressed the challenges associated with the broad dissemination of job offers. By leveraging advanced data science techniques, we have improved the accuracy and relevance of job recommendations, ensuring that students are presented with opportunities that align closely with their skills, interests, and career goals.

**Perspectives:**

- ➢ Expansion to other educational institutions
- ➢ Collaboration with industry partners