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BRIDGING THE GAP

An AI-enabled versatile skill matching tool to assist the less privileged

BRIDGING THE GAP DELIVERABLE 4.3

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BRIDGING THE GAP Project Profile

Grant Agreement No.: 2021-1-EL02-KA220-YOU-000028780

Acronym:	BRIDGING THE GAP
Title:	Bridging the Gap – An AI-enabled versatile skill matching tool to assist the less privileged
URL:	https://bridgingthegaproject.eu/
Start Date:	14/02/2022
Duration:	24 months

Partners

 INTERNATIONAL HELLENIC UNIVERSITY	DIETHNES PANEPISTIMIO ELLADOS (IHU)	Greece
 MYCOMPANY	MY COMPANY PROJECTS O.E.	Greece
	UNIVERSITATEA DIN CRAIOVA	Romania
	Regional center for vocational training and education to CCI-Blagoevgrad	Bulgaria

Document History

Version	Date	Author (Partner)	Remarks/Changes
0.1	04/12/2023	Kalliopi Kravari (IHU)	Table of Contents
0.2	1/04/2024	All team members	1 st Draft ready for internal review
0.3	10/04/2024	Kalliopi Kravari (IHU)	2 nd Draft ready for quality control
1.0	13/04/2024	Periklis Chatzimisios (IHU)	FINAL VERSION TO BE SUBMITTED

Abbreviations and acronyms

Deliverable	D
Expected Outcomes	EO
International Hellenic University	IHU
Non-governmental organization	NGO
Labour Force Survey	LFS
Neither in employment nor in education or training	NEET
Human Resources	HR
URI	Uniform Resource Identifier
CV	Curriculum Vitae
JV	Job Vacancy
UoL	Unit of Learning

Executive Summary

BRIDGING THE GAP is a 24 month duration project funding from the European Union's Erasmus+: KA220-YOU under Grant Agreement 2021-1-EL02-KA220-YOU-000028780.

The overarching objective of the BRIDGING THE GAP project is to provide a holistic approach beyond a classical skill-matching system to a system that will bridge the gap as to who are the underprivileged and why are they underprivileged and how education and skill improvement will benefit them.

The main purpose of this document is to report the progress of the BRIDGING THE GAP project during the deliverable 4.3. More specifically, this deliverable reports on Project Results 4 findings that present sample of the material that was uploaded to the website/app.

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1 Introduction

1.1 Purpose of the document

The purpose of this document is to present the progress of the project during the final implementation phase regarding the implemented research activities as they are reported in Project Results 4 (deliverable 4.3).

1.2 Intended audience

The intended audience of this document consists of the following target groups:

- BRIDGING THE GAP project partners and the Project Officer at the National Agency
- Young people, especially on the Balkan area, that are interested in skill building/matching
- Labour market actors
- Universities, course providers

1.3 Work Package Objective

The results included in this deliverable are part of O4 result type representing the “Bringing the Gap Web Platform”. The objective of the O4 is the creation of a web platform host all the tools, services and related audiovisual material produced during the O1, O2, O3 and O5. The platform will be used for dissemination purposes, but will also provide to all the relevant stakeholders to use the tools and/ or integrate them into their systems. The development of this output was achieved through the next activities:

4.1 Analysis of platform requirements and design

4.2 Development of e-platform

4.3 Development of material that will be uploaded to the website

4.4 Translation of web platform

Results obtained in T4.3 are included in this deliverable that addresses sub objective O4.3 “Development of material that will be uploaded to the website”.

1.4 Structure of the document

In chapter 2, this report presents the User Guides tab.

In chapter 3, an example CV is presented.

In chapter 4, an example JV is presented.

In chapter 5, an example UoL is presented.

In chapter 6, the BTG_App_User_Guide app is depicted.

In chapter 7, this report concludes the findings.

2 User Guides

Sample material is uploaded to the app website in order to support users.

User Guides

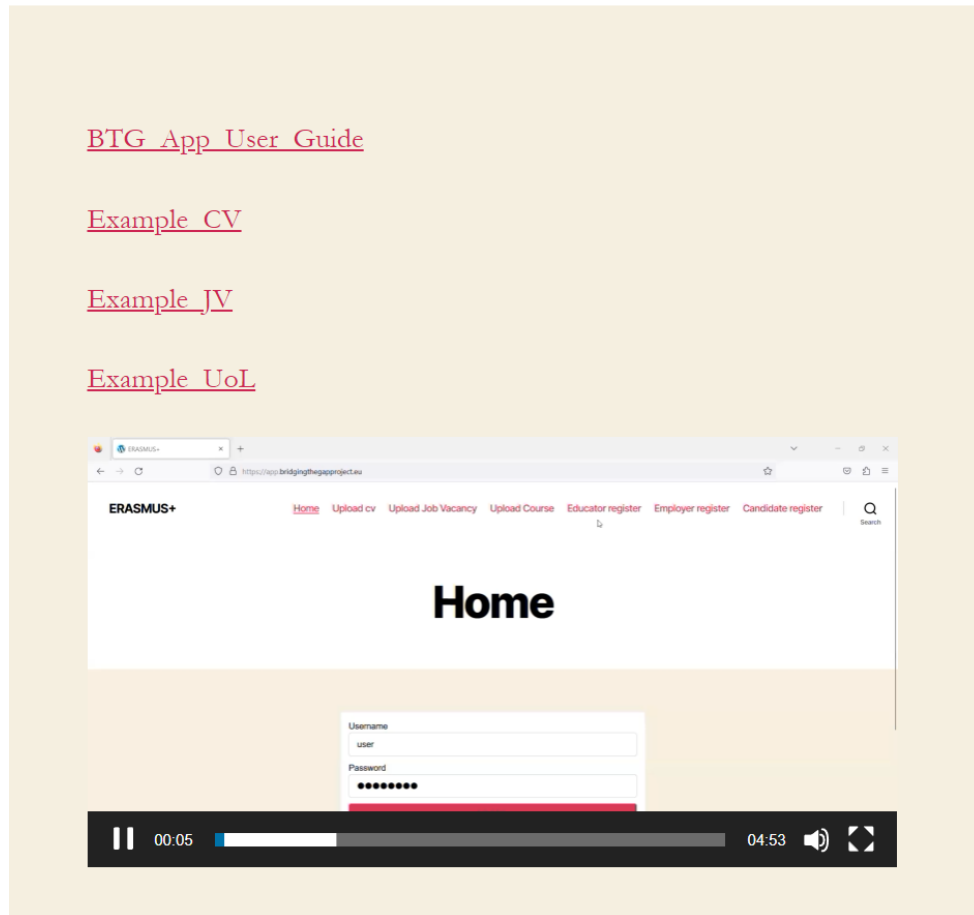


Figure 1: User Guides

3 Example CV

A number of CV was collected or developed in order to be used in the app. There is no specific template for the CV since the platform is able to parse and extract information from any kind of CV file. Mention that the platform is fed with CVs from all four languages (English, Greek, Romanian and Bulgarian).

Below is presented one of those CVs that is also uploaded in the app as sample CV.

SUMMARY

Electrical and Computer Engineer graduate with experience in Computer Science and Machine Learning. Passionate about data driven solution implementations and decision making. Seeking challenging work and learning opportunities.

SKILLS

- Python, Matlab, R, C, C++, Java
- Machine Learning / Deep Learning
- Linux, Unix Bash

LANGUAGES

- Greek: Native
- English: Proficient - ECPE
- French: Advanced - DELF B2

EDUCATION

Integrated MSc in Electrical and Computer Engineering

Aristotle University of Thessaloniki (7.04 / 10)

Sept 2013 – Oct 2020, Thessaloniki, Greece

PROJECTS

Speech Signal Separation, Individual Project | Thesis

Oct 2019 - July 2020

- End-to-end Speech Signal Separation System
- Built on Deep Learning concepts and based on Convolutional (Recurrent) Neural Networks

- Implemented in Python, Keras and Tensorflow APIs.

Music - Speech Classification, Team Project

Oct 2018 - Feb 2019

- Based on the respective MIRex 2018 Task
- Classic Machine Learning methods (SVMs, GMMs), combined with Data Augmentation
- Implemented in Matlab and R

"Game of Life", Team Project

Dec 2016

- Implementation of Conway's Game of Life automaton, designed to run on Distributed Systems
- Implemented in C with MPI – OpenMPI

Non Local Means Image Filtering, Team Project

Jan 2017

- Implementation of the Non-Local-Means algorithm, used for digital image processing (sharpening)
- Implemented in Matlab, C and CUDA, for computational acceleration

Network-based Positional Tracker, Individual Project

Jul 2017

- Small project, developing a compact WiFi tracker, used to pinpoint the relevant position of individuals and vehicles in greater scale projects.
- Designed to operate on an embedded device in real time. Optimized for energy efficiency

4 Example JV

A number of JV was collected or developed in order to be used in the app. There is no specific template for the JV since the platform is able to parse and extract information from any kind of JV file. Mention that the platform is fed with JVs from all four languages (English, Greek, Romanian and Bulgarian).

Below is presented one of those JVs that is also uploaded in the app as sample JV.

Software Engineer - C++ for Automotive

Our company, is a rapidly growing, innovative Software Company, located in Athens. Through our team, of highly motivated Software Engineers with a strong technical background and long experience in complex international projects, we provide to our customers, both locally and globally, technical excellence and valuable services.

Currently we are looking for a C++ Software Engineer, to be part of our team working for the Global Automotive Market, from Greece.

Required skills:

- Willing to take on challenges
- Have strong problem analyzing, tracking and solving skills
- Strong communication skills, be able to cooperate within a multi-national environment
- Able to work efficiently either independently or as part of a team,
- Able to organize and mentor other members, based on existing skills and if required.
- University Degree in Computer Science, Electrical Engineering or relevant discipline
- Very good in C++ (more than 4 years of hands-on experience)
- Experience with OO-principles
- Experience with C and embedded Software principles
- Experience with Linux
- Experience with software engineering principles and processes (e.g. agile-scrum, CMMI, A-spice)
- Very good oral and written communication skills in English

Nice to have:

- Experience with collaboration and tracking tools (e.g. Confluence, Jira, Git, Polarion),
- Experience with one or more of the following: Android SDK, Broadcast technologies like FM/AM/DAB

What we offer:

- Continuous learning opportunities for professional software development of large scale and quality demanding projects.
- A competitive remuneration package, based on qualification / experience
- Private health insurance on the company's group program
- Training budget
- Excellent working environment and work-life balance
- Centrally located, proximity to public transport lines
- Work in a challenging multinational environment
- All applications will be treated as confidential

5 Example UoL

A number of UoL was collected or developed in order to be used in the app. There is no specific template for the UoL since the platform is able to parse and extract information from any kind of UoL file. Mention that the platform is fed with UoLs from all four languages (English, Greek, Romanian and Bulgarian).

Below is presented one of those UoLs that is also uploaded in the app as sample UoL.

Python 3 Programming Specialization

Become a Fluent Python Programmer. Learn the fundamentals and become an independent programmer.

What you'll learn:

- Learn Python 3 basics, from the basics to more advanced concepts like lists and functions.
- Practice and become skilled at solving problems and fixing errors in your code.
- Gain the ability to write programs that fetch data from internet APIs and extract useful information.

Description:

This specialization teaches the fundamentals of programming in Python 3. We will begin at the beginning, with variables, conditionals, and loops, and get to some intermediate material like keyword parameters, list comprehensions, lambda expressions, and class inheritance.

You will have lots of opportunities to practice. You will also learn ways to reason about program execution, so that it is no longer mysterious and you are able to debug programs when they don't work.

By the end of the specialization, you'll be writing programs that query Internet APIs for data and extract useful information from them. And you'll be able to learn to use new modules and APIs on your own by reading the documentation. That will give you a great launch toward being an independent Python programmer.

But it is also appropriate as a first set of courses in Python if you are already familiar with some other programming language, or if you are up for the challenge of diving in head-first.

By the end of the second course, you will create a simple sentiment analyzer that counts the number of positive and negative words in tweets. In the third course, you will mash up two APIs to create a movie recommender.

The final course named “Python Project: pillow, tesseract, and opencv (Course 5)”, is an extended project in which you'll perform optical character recognition (OCR) and object detection in images.

Courses:

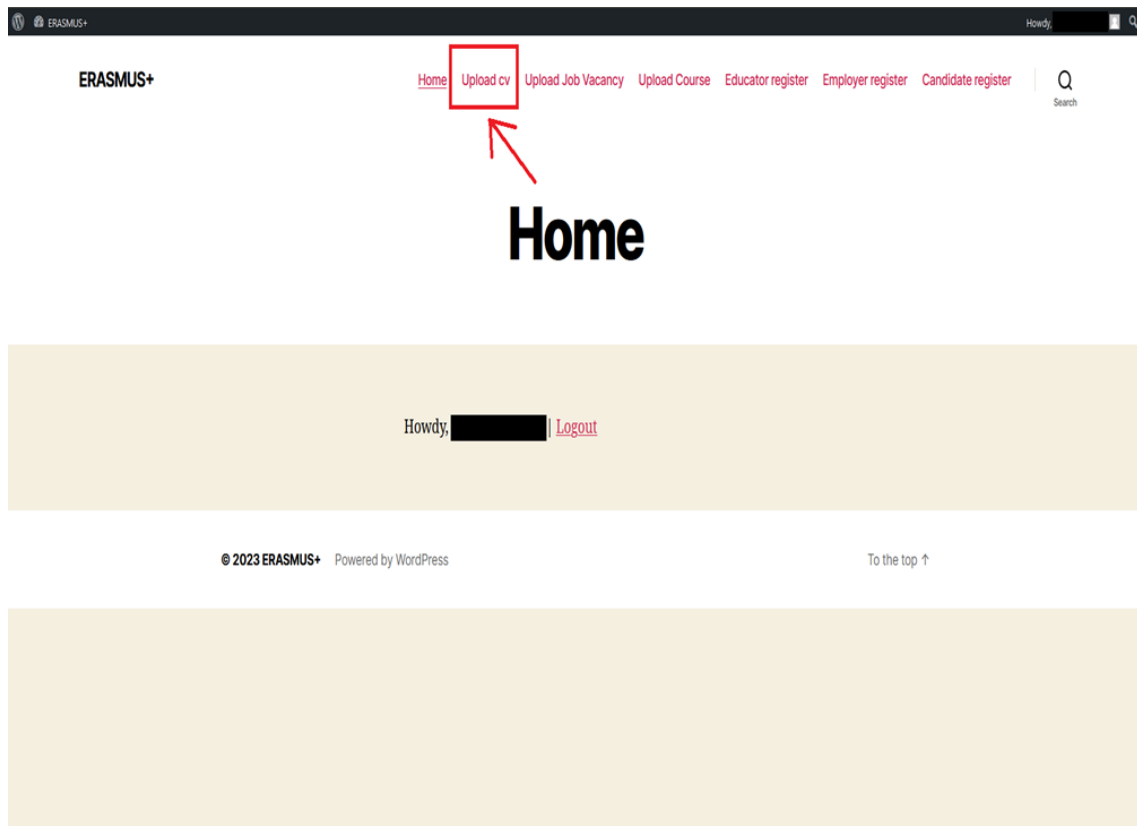
- Python Basics
- Python Functions, Files, and Dictionaries
- Data Collection and Processing with Python
- Python Classes and Inheritance
- Python Project: pillow, tesseract, and opencv

6 BTG_App_User_Guide app



After you login you get transferred to the home page.

There, you can click the upload CV button if you are a job candidate.



Upload your CV in PDF file format.

Pick the language your CV is written in and then click submit.

ERASMUS+ [Home](#) [Upload cv](#) [Upload Job Vacancy](#) [Upload Course](#) [Educator register](#) [Employer register](#) [Candidate register](#) [Search](#)

Upload cv

CV *(Required)*

Drop files here or

SELECT FILES

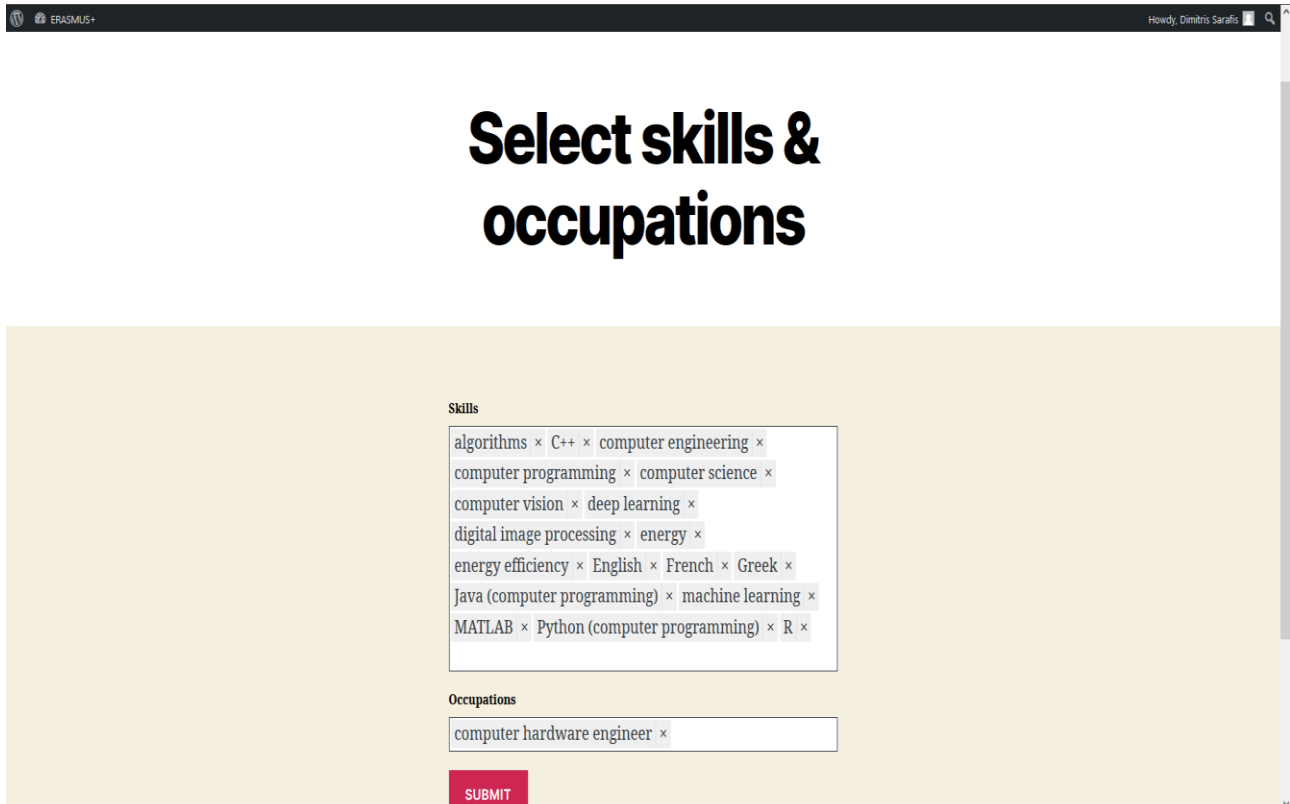
Upload your cv in pdf format

Language *(Required)*

Greek

SUBMIT

In this page you can see the skills and occupations our algorithm extracted from your CV.
If you want you can remove or add skills and occupations in the respective fields in case you disagree with the algorithm's output.



The screenshot shows a web interface with a dark header bar containing the ERASMUS+ logo on the left and the user name 'Howdy, Dimitris Sarafis' on the right. The main content area has a light beige background and features a large, bold heading 'Select skills & occupations'. Below the heading, there are two sections: 'Skills' and 'Occupations'. The 'Skills' section contains a list of skills, each with a small 'x' icon for removal: algorithms, C++, computer engineering, computer programming, computer science, computer vision, deep learning, digital image processing, energy, energy efficiency, English, French, Greek, Java (computer programming), machine learning, MATLAB, Python (computer programming), and R. The 'Occupations' section contains a single entry: computer hardware engineer. At the bottom of the form is a red 'SUBMIT' button.

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Howdy, Dimitris Sarafis

Select skills & occupations

Skills

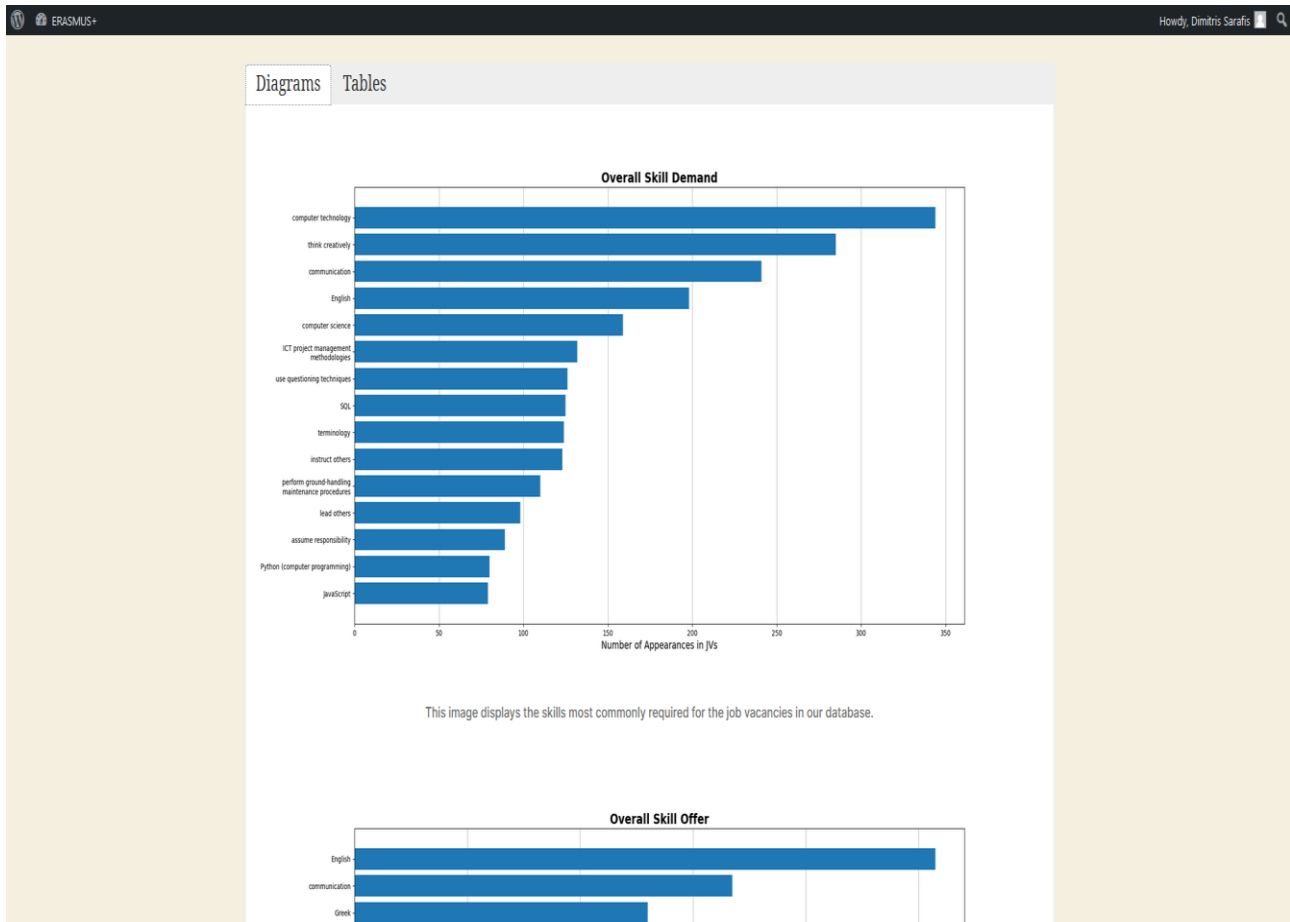
algorithms × C++ × computer engineering ×
computer programming × computer science ×
computer vision × deep learning ×
digital image processing × energy ×
energy efficiency × English × French × Greek ×
Java (computer programming) × machine learning ×
MATLAB × Python (computer programming) × R ×

Occupations

computer hardware engineer ×

SUBMIT

In this tab, you can see some statistics regarding the skill offer and demand in the job market, based on data available in our database.



In this tab, you can see some tables that contain recommendations for you based on your CV.

The recommendations can be jobs, courses, occupations or even a training path you can follow in order to acquire the skills needed to apply for a job recommended to you.

ERASMUS+
Howdy, Dimitris Sarafis

Diagrams
Tables

Recommended Jobs – Method 1

This table shows the Job Vacancies most suitable for you based on the score column. The score is calculated from the amount of skills present in both the Job Vacancy and your CV.

Title	Score
Data Scientist	0.2222
Internship (Next Generation Wifi-based Positioning)	0.1875
QA Test Engineer	0.1875
QA Test Engineer	0.1875
Ηλεκτρολόγος Μηχανικός & Μηχανικός Υπολογιστών	0.1818
CAx Μηχανικοί – Complex System Simulations	0.1667
Software Engineer	0.1622
Senior Python Developer	0.1562
Research Engineer (Mid / Senior) [50,000 - 80,000 GBP], Brighton	0.1500
Software Engineer c/c++	0.1481

Recommended Jobs – Method 2

This table shows the Job Vacancies most suitable for you based on the score column. The score is calculated from a more sophisticated method than the one used for the previous table.

Title	Score
-------	-------

7 Conclusion

In this deliverable we presented sample of the material uploaded to the app website in order to support users. It includes, user guide, example CV, example JV, example UoL and video presenting the app.

References

- [1] BRIDGING THE TRANSITION BETWEEN EDUCATION AND THE LABOUR MARKET, Report of the conference of the European Network of Education Councils, Prague, 20-21 October 2014.