CPCS-331: Artificial Intelligence I CLO-10/SO-2: Group Project(Expert System) Fall 2022 | S1, 1444 h

# تخصصي EXPERT SYSTEM

Anfal Sultan Alshehri( leader )





Bin Kulaib

Kawther Kamal Aldhaheri

Section B2A

22 October 2022

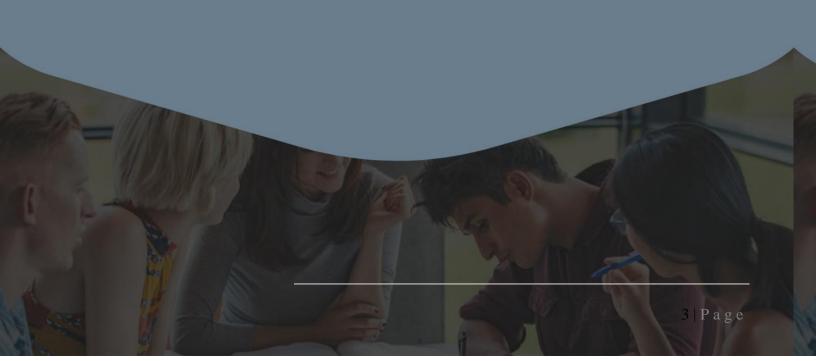
## Contents

1. Task Assignment	3
1.1. The tasks performed for this project.	3
1.2. Each group member's percentage contribution to each task	3
2. Introduction	4
2.1. purpose of the Expert system	4
2.2. The users and clients, of the system	4
2.3. The Expert.	4
2.4. The Resources that will be used	4
3. Body	5
3.1 A list of rules	5
3.2. The technique used to acquire knowledge from the system	23
3.3. The system's flowchart	23
references	24
Appendices	27
Source code	27
Screenshots	34

## 1. Task Assignment

- 1.1. The tasks performed for this project.
  - a. Collecting the data "Universities information".
  - b. Documenting.
  - c. Flowchart drawing.
  - d. Coding.
  - e. Testing.
- 1.2. Each group member's percentage contribution to each task.

All team members worked together on every task.



#### 2. Introduction

## 2.1. Purpose of the Expert system

The system aims to help anyone who wants to study in computing majors in Saudi Arabia universities to discover the obtainable universities.

This system will assists the students by asking them to enter their desired major, where they live, their gender, and what degree they are looking for. The system will display to the student the available universities according to their input.

#### 2.2. The users and clients, of the system

• Student who want to study computing major in Saudi universities.

## 2.3. The Expert.

Assist students in determining available universities in computer specializations, as a specific degree in Saudi Arabia universities .



## 3. Body

#### 3.1. A list of rules

- R1. If the Student was:
  - 1. Want BACHELOR degree
  - 2.From Tabuk city
  - 3. Their gender is female/male
  - 4. They want Computer science major

## Then The system will recommend them Tabuk University

- R2. If the Student was:
  - 1. Want BACHELOR degree
  - 2.From master city
  - 3. Their gender is female/male
  - 4. They want **AI** major

## Then The system will recommend them Tabuk University

- R3. If the Student was:
  - 1. Want master degree
  - 2.From **Tabuk** city
  - 3. Their gender is female/male
  - 4. They want **Cyber security** major

## Then The system will recommend them Tabuk University

- R4. If the Student was:
  - 1.Want master degree
  - 2.From Tabuk city
  - 3. Their gender is female/male

- R5. If the Student was:
  - 1.Want BACHELOR degree
  - 2.From Arar city
  - 3. Their gender is female/male
  - 4. They want Computer science major

## Then The system will recommend to them Northern Borders University

- R6. If the Student was:
  - 1. Want **Diploma** degree
  - 2.From Hail city
  - 3. Their gender is **female/male**
  - 4. They want Cyber security major

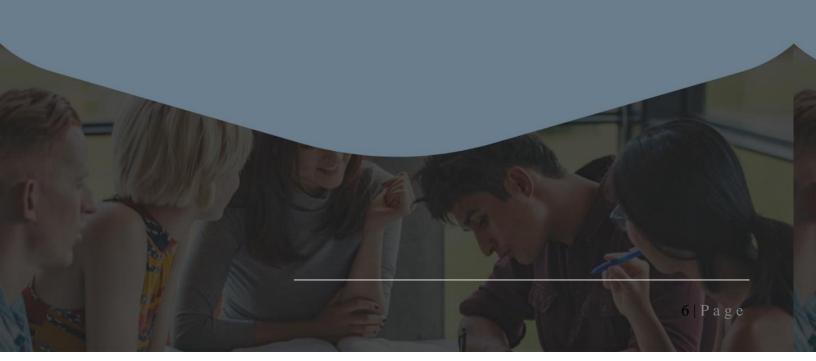
## Then The system will recommend them University of Hail

- R7. If the Student was:
  - 1. Want BACHELOR degree
  - 2.From Hail city
  - 3. Their gender is female/male
  - 4. They want Computer science major

## Then The system will recommend to them University of Hail

- R8. If the Student was:
  - 1. Want master degree
  - 2.From Hail city
  - 3. Their gender is female/male
  - 4. They want AI major

## Then The system will recommend them University of Hail



#### R9. If the Student was:

- 1.Want master degree
- 2.From Hail city
- 3. Their gender is female/male
- 4. They want Cyber security major

## Then The system will recommend to them University of Hail

- R10. If the Student was:
  - 1. Want **Diploma** degree
  - 2.From Al-Jawf city
  - 3. Their gender is female/male
  - 4. They want **Networking** major

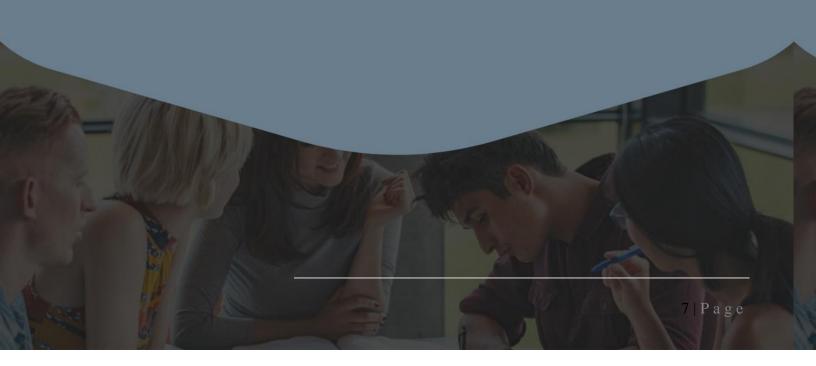
## Then The system will recommend them Al Jawf University

- R11. If the Student was:
  - 1. Want **Diploma** degree
  - 2.From **Al-Jawf** city
  - 3. Their gender is female/male
  - 4. They want **Data science** major

## Then The system will recommend them Al Jawf University

- R12. If the Student was:
  - 1.Want BACHELOR degree
  - 2.From Al-Jawf city
  - 3. Their gender is female/male
  - 4. They want Computer science major

Then The system will recommend them Al Jawf University



- R13. If the Student was: 1. Want BACHELOR degree 2.From Al-Jawf city 3. Their gender is female/male
  - 4. They want **Software engineer** major

## Then The system will recommend them Al Jawf University

- R14. If the Student was:
  - 1. Want master degree
  - 2.From Al-Jawf city
  - 3. Their gender is female/male
  - 4. They want **Data science** major

## Then The system will recommend them Al Jawf University

- R15. If the Student was:
  - 1. Want master degree
  - 2.From **Al-Jawf** city
  - 3. Their gender is female/male
  - 4. They want **AI** major

## Then The system will recommend them Al Jawf University

- R16. If the Student was:
  - 1. Want master degree
  - 2.From **Al-Jawf** city
  - 3. Their gender is female/master
  - 4. They want Cyber security major

## Then The system will recommend them Al Jawf University

- R17. If the Student was:
  - 1.Want BACHELOR degree
  - 2.From Najran city
  - 3. Their gender is female/male

## R18. If the Student was: 1. Want BACHELOR degree 2.From Al-Baha city 3. Their gender is female/male 4. They want Computer science major Then The system will recommend them Al-Baha University R19. If the Student was: 1. Want master degree 2.From Al-Baha city 3. Their gender is female/male 4. They want **AI** major Then The system will recommend them Al-Baha University R20. If the Student was: 1. Want master degree 2.From Al-Baha city 3. Their gender is male 4. They want Cyber security major Then The system will recommend them Al-Baha University R21. If the Student was: 1. Want **Diploma** degree 2.From Jazan city 3. Their gender is female/male 4. They want Computer science major Then The system will recommend them Jazan University R22. If the Student was: 1. Want BACHELOR degree 2.From Jazan city 3. Their gender is female/male 4. They want Computer science major ystem will recommend them Jazan University

## R23. If the Student was:

- 1. Want **Diploma** degree
- 2.From Abha city
- 3. Their gender is male
- 4. They want **Networking** major

## Then The system will recommend them King Khalid University

- R24. If the Student was:
  - 1. Want **Diploma** degree
  - 2.From **Abha** city
  - 3. Their gender is female/male
  - 4. They want **Programming** major

## Then The system will recommend them King Khalid University

- R25. If the Student was:
  - 1. Want BACHELOR degree
  - 2.From Abha city
  - 3. Their gender is female/male
  - 4. They want Computer science major

## Then The system will recommend them King Khalid University

- R26. If the Student was:
  - 1.Want master degree
  - 2.From Abha city
  - 3. Their gender is female/male
  - 4. They want Computer science major

## Then The system will recommend them King Khalid University

- R27. If the Student was:
  - 1.Want master degree
  - 2.From Abha city
  - 3.Their gender is female/male
  - 4. They want Cyber security major

**System will recommend them King Khalid University** 

#### R28. If the Student was:

- 1.Want master degree
- 2.From Abha city
- 3. Their gender is female/male
- 4. They want **Data science** major

## Then The system will recommend them King Khalid University

#### R29. If the Student was:

- 1. Want Bachelor degree
- 2. From Eastern region
- 3. Their gender is male / female
- 4. They want artificial intelligence major

## Then The system will recommend them imam Abdulrahman bin Faisal university

#### R30. If the Student was:

- 1. Want master degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want artificial intelligence major

## Then The system will recommend them King Fahd University of Petroleum & Minerals

#### R31. If the Student was:

- 1. Want Bachelor degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Cybersecurity major

## Then The system will recommend them

imam Abdulrahman bin Faisal university University of Hafr Al Batin

#### R32. If the Student was:

- 1. Want Master degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Cybersecurity major

#### Then The system will recommend them

King Fahd University of Petroleum & Minerals King Faisal University

#### If the Student was: R33.

- 1. Want Bachelor degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

King Fahd University of Petroleum & Minerals prince Mohammad bin Fahd university **King Faisal University** imam Abdulrahman bin Faisal university **University of Hafr Al Batin** 

#### R34. If the Student was:

- 1.Want Master degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

**King Fahd University of Petroleum & Minerals** 

#### R35. If the Student was:

- 1. Want Bachelor degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Software Engineering major

#### Then The system will recommend them

King Fahd University of Petroleum & Minerals prince Mohammad bin Fahd university University of Hafr Al Batin

#### R36. If the Student was:

- 1. Want Master degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want Software Engineering major

#### Then The system will recommend them

**King Fahd University of Petroleum & Minerals** 

#### R37. If the Student was:

- 1. Want Bachelor degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want **Networking** major

## Then The system will recommend them

**King Faisal University** 

#### R38. If the Student was:

- 1. Want Master degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want **Networking** major

stem will recommend them

King Fahd University of Petroleum & Minerals

## R39. If the Student was:

- 1. Want **Doctorate** degree
- 2.From Eastern region
- 3. Their gender is male / female
- 4. They want **Networking** major

#### Then The system will recommend them

King Fahd University of Petroleum & Minerals

#### R40. If the Student was:

- 1. Want Bachelor degree
- 2.From Qassim region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

**Qassim university** 

#### R41. If the Student was:

- 1. Want Master degree
- 2.From Qassim region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

**Qassim university** 

## R42. If the Student was:

- 1.Want Master degree
- 2.From Qassim region
- 3. Their gender is male / female
- 4. They want **Networking** major

Then The system will recommend them

**Qassim university** 

#### R43. If the Student was:

- 1. Want Bachelor degree
- 2.From **Riyadh** region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

imam Muhammad ibn Saud Islamic university prince Sattam bin Abdulaziz university king Saud university

MajmaahUniversity Shaqra University

- R44. If the Student was 1. Want Master degree
  - 2.From Riyadh region
  - 3. Their gender is male / female
  - 4. They want Computer Sciences major

## Then The system will recommend them

imam Muhammad ibn Saud Islamic university king Saud university

## R45. If the Student was:

- 1. Want **Doctorate** degree
- 2.From Riyadh region
- 3. Their gender is male / female
- 4. They want Computer Sciences major

## Then The system will recommend them

king Saud university

#### R46. If the Student was:

- 1. Want Bachelor degree
- 2.From Riyadh region
- 3. Their gender is male / female
- 4. They want Software Engineering major

## en The system will recommend them

prince Sattam bin Abdulaziz university king Saud university Shaqra University

#### R47. If the Student was:

- 1. Want Master degree
- 2.From Riyadh region
- 3. Their gender is male / female
- 4. They want Software Engineering major

## Then The system will recommend them king Saud university

## R48. If the Student was:

- 1. Want **Doctorate** degree
- 2.From Riyadh region
- 3. Their gender is male / female
- 4. They want **Software Engineering** major

## Then The system will recommend them king Saud university

#### R49. If the Student was:

- 1. Want master degree
- 2.From Riyadh region
- 3. Their gender is male / female
- 4. They want artificial intelligence major

## Then The system will recommend them prince Sattam bin Abdulaziz university

#### R50. If the Student was:

- 1. Want master degree
- 2.From **Riyadh** region
- 3. Their gender is male / female
- 4. They want **Data Science** major

## Then The system will recommend them



#### R51. If the Student was:

- 1. Want **master** degree
- 2.From **Rivadh** region
- 3. Their gender is male / female
- 4. They want Cybersecurity major

## Then The system will recommend them prince Sattam bin Abdulaziz university

#### If the Student was: R52.

- 1. Want **Diploma** degree
- 2.From Riyadh city
- 3. Their gender is male
- 4. They want **Programming** major

## Then The system will recommend them MajmaahUniversity

#### If the Student was: R53.

- 1. Want **Diploma** degree
- 2.From Riyadh city
- 3. Their gender is **female**
- 4. They want **Programming** major

## Then The system will recommend them Princess Nourah Bint Abdulrahman University

#### If the Student was: R54.

- 1. Want Bachelor degree
- 2.From Riyadh city
- 3. Their gender is female

4. They want Computer Science major Then The system will recommend them Princess Nourah Bint Abdulrahman University 17 | Page

- R55. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Riyadh city
  - 3. Their gender is **female**
  - 4. They want **Data analysis** major

Then The system will recommend them Princess Nourah Bint Abdulrahman University

- R56. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Riyadh city
  - 3. Their gender is female
  - 4. They want Cyber Security major

Then The system will recommend them Princess Nourah Bint Abdulrahman University

- R57. If the Student was:
  - 1. Want Bachelor degree
  - 2.From **Riyadh** city
  - 3. Their gender is **female**
  - 4. They want Artificial intelligence major

Then The system will recommend them Princess Nourah Bint Abdulrahman University

- R58. If the Student was:
  - 1. Want Master degree
  - 2.From Riyadh city
  - 3. Their gender is **female**
  - 4. They want Data analysis major

The System will recommend them Princess Nourah Bint Abdulrahman

University

- R59. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Jeddah city
  - 3. Their gender is male / female
  - 4. They want Computer science major

## Then The system will recommend them King Abdulaziz University

- If the Student was: R60.
  - 1.Want Master degree
  - 2.From Jeddah city
  - 3. Their gender is male / female
  - 4. They want Computer science major

Then The system will recommend them King Abdulaziz University, **University Of Jeddah** 

- If the Student was: R61.
  - 1. Want Bachelor degree
  - 2.From Jeddah city
  - 3. Their gender is **female**
  - 4. They want Computer science major

Then The system will recommend them University Of Jeddah, King **Abdulaziz University** 

- R62. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Jeddah city
  - 3. Their gender is **female**

- R63. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Jeddah city
  - 3. Their gender is **female**
  - 4. They want Software Engineering major

## Then The system will recommend them University Of Jeddah

- R64. If the Student was:
  - 1.Want Bachelor degree
  - 2.From Jeddah city
  - 3. Their gender is **female**
  - 4. They want Computer & Network Engineering major

## Then The system will recommend them University Of Jeddah

- R65. If the Student was:
  - 1. Want Master degree
  - 2.From Jeddah city
  - 3. Their gender is male / female
  - 4. They want **Data analysis** major

## Then The system will recommend them University Of Jeddah

- R66. If the Student was:
  - 1.Want Master degree
  - 2.From Jeddah city
  - 3. Their gender is male / female



- R67. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Medina city
  - 3. Their gender is male / female
  - 4. They want Computer Science major

## Then The system will recommend them Taibah University

- R68. If the Student was:
  - 1. Want Master degree
  - 2.From Medina city
  - 3. Their gender is male / female
  - 4. They want Computer Science major

## Then The system will recommend them Taibah University

- R69. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Medina city
  - 3. Their gender is male / female
  - 4. They want Computer Science major

## Then The system will recommend them Islamic University of Madinah

- R70. If the Student was:
  - 1. Want Master degree
  - 2.From Medina city
  - 3. Their gender is male / female
  - 4. They want **Data Science** major

## Then The system will recommend them Islamic University of Madinah

- R71. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Taif city
  - 3. Their gender is male / female
  - 4. They want Computer Sciences major

hen The system will recommend them Taif University

- R72. If the Student was:
  - 1. Want Bachelor degree
  - 2.From Makkah city
  - 3. Their gender is male / female
  - 4. They want Computer Sciences major

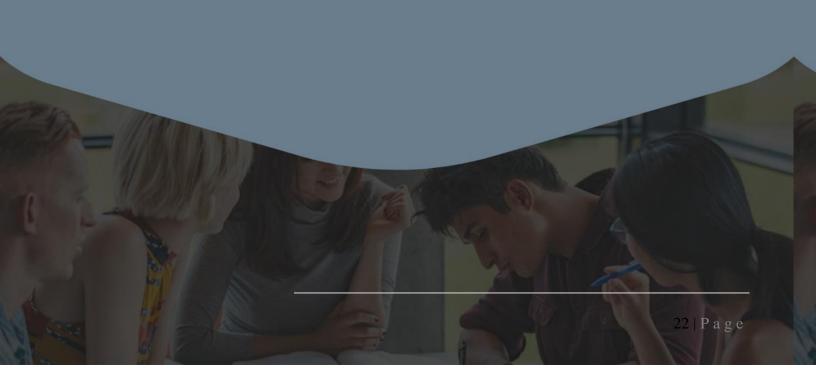
## Then The system will recommend them Umm Al - Qura University

- R73. If the Student was:
  - 1.Want Master degree
  - 2.From Makkah city
  - 3. Their gender is male / female
  - 4. They want Artificial Intelligence major

## Then The system will recommend them Umm Al - Qura University

- R74. If the Student was:
  - 1.Want Master degree
  - 2.From Makkah city
  - 3. Their gender is male / female
  - 4. They want Computer Sciences major

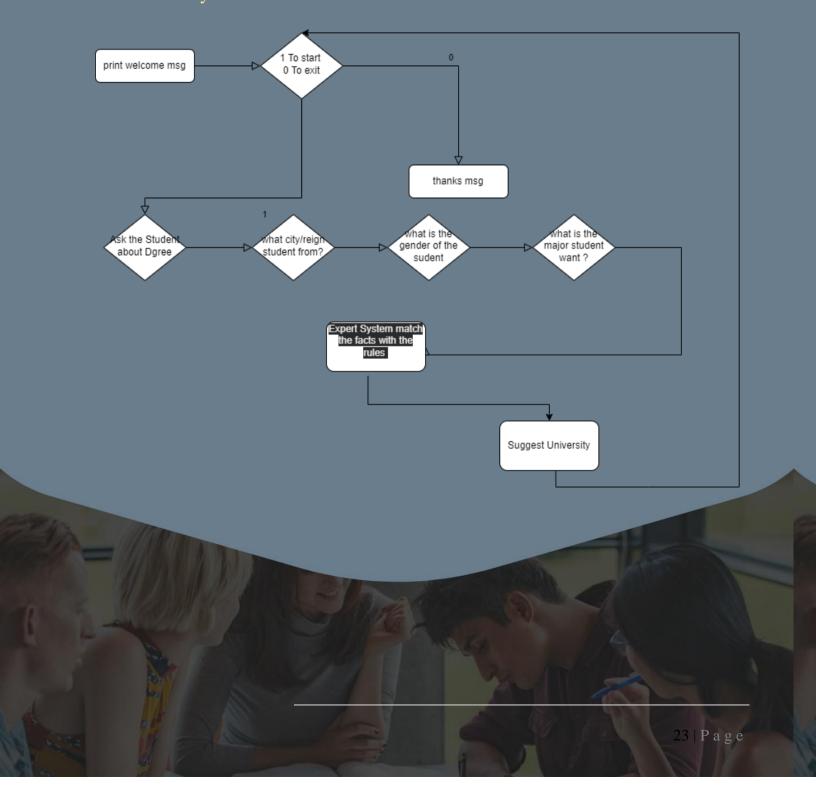
Then The system will recommend them Umm Al - Qura University



## 3.2. The technique used to acquire knowledge from the system.

The system will take four input from the user and according to user's input the system will match the student with the output "appropriate universities". In this project we use a forward chaining.

## 3.3. The system's flowchart



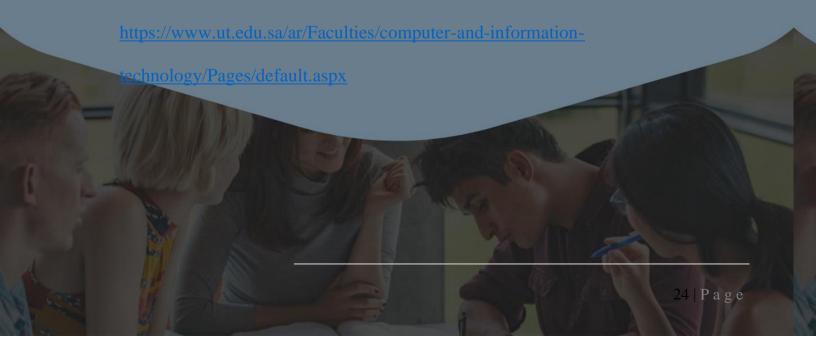
#### References

- 1- "كلية علوم الحاسب والمعلومات." جامعة الملك سعود , https://ccis.ksu.edu.sa/ar
- 2- "COLLEGE OF COMPUTING AND MATHEMATICS." King Fahd University of Petroleum & Minerals,
  - http://www.kfupm.edu.sa/SitePages/en/PageDetails.aspx?pid=63
- 3- Www.pmu.edu.sa. "كلية هندسة و علوم الحاسب الآلي." جامعة الأمير محمد بن فهد https://live.pmu.edu.sa/ar/academics/overview\_cces\_udp
- 4- "كلية الحاسب." جامعة القصيم, https://qu.edu.sa/content/p/2127
- 5- كلية علوم الحاسب و المعلومات." جامعة الإمام محمد بن سعود الإسلامية" https://units.imamu.edu.sa/colleges/ComputerAndInformation/Pages/default.aspx
- 6- "كلية علوم الحاسب وتقنية المعلومات." جامعة الملك فيصل, https://www.kfu.edu.sa/ar/Colleges/Computer Science/Pages/Home-new.asr
- 7- "كلية علوم الحاسب وتقنية المعلومات." كلية علوم الحاسب وتقنية المعلومات | Imam Abdulrahman Bin Faisal University, <a href="https://www.iau.edu.sa/ar/colleges/college-of-computer-science-and-information-technology">https://www.iau.edu.sa/ar/colleges/college-of-computer-science-and-information-technology</a>
- 8- كلية علوم و هندسة الحاسب الآلي." جامعة حفر الباطن", https://www.uhb.edu.sa/Pages/About.aspx?Param=college&Ref=31
- 9- كلية هندسة وعلوم الحاسب. " جامعة الأمير سطام بن عبد العزيز " https://cces.psau.edu.sa/ar
- 10- المنورة (n.d.). Retrieved October 21, 2022, from <a href="https://iu.edu.sa/site\_Page/20219">https://iu.edu.sa/site\_Page/20219</a>
- (n.d.-b). جامعة طبية -11

https://www.taibahu.edu.sa/Pages/AR/Sector/SectorPage.aspx?ID=22&PageId=166

0

12- جامعة تبوك (n.d.). Retrieved October 21, 2022, from



13- ima alga | In.d.). Retrieved October 21, 2022, from https://www.ju.edu.sa/%D8%A7%D9%84%D9%83%D9%84%D9%8A%D8%A7

%D8%AA/%D8%A7%D9%84%D9%83%D9%84%D9%8A%D8%A7%D8%AA%D8%A7%D9%84%D8%B9%D9%84%D9%85%D9%8A%D8%A9/%D9%83%

D9%84%D9%8A%D8%A9-%D8%B9%D9%84%D9%88%D9%85%D8%A7%D9%84%D8%AD%D8%A7%D8%B3%D8%A8%D9%88%D8%A7%D9%84%D9%85%D8%B9%D9%84%D9%88%D9%85%D8

%A7%D8%AA/%D8%A7%D9%84%D8%A3%D9%82%D8%B3%D8%A7%D9
%85/%D9%82%D8%B3%D9%85-%D8%B9%D9%84%D9%88%D9%85%D8%A7%D9%84%D8%A7%D8%B3%D9%884%D9%88%D9%85%D8%A7%D9%84%D8%A7%D8%B3%D9%84%D9%88%D9%85%D8%A7%D9%84%D8%A7%D8%B3%D9%84%D9%88%D9%85%D8%A7%D9%84%D8%A7%D8%B3%D8%A7%D9

14-home - College of Computer Science & Information Systems - Najran University.(n.d.). College of Computer Science & Information Systems. Retrieved October 21,2022, from <a href="https://cscis.nu.edu.sa/">https://cscis.nu.edu.sa/</a>

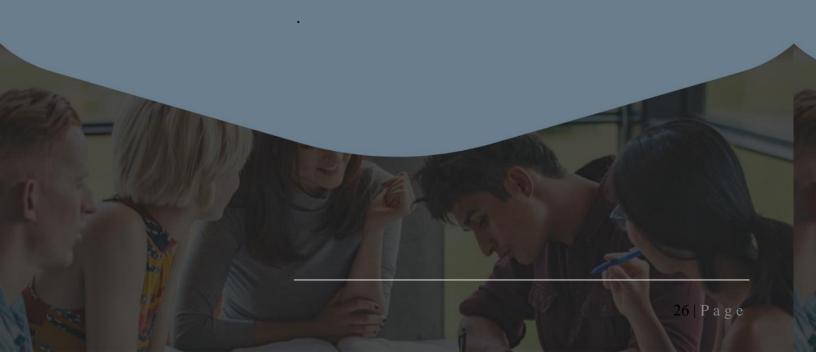
15- جامعة جيزان. (n.d.). <a href="https://www.jazanu.edu.sa/ar/colleges/csit">https://www.jazanu.edu.sa/ar/colleges/csit</a>

16- كلية علوم الحاسب الآلي جامعة الملك خالد (n.d.). Retrieved October 21, 2022, from https://cs.kku.edu.sa/ar

Retrieved October 21, 2022, from جامعة الحدود الشمالية .(n.d.) قسم علوم الحاسبات -17 https://colleges-of-science.nbu.edu.sa/arar-department-computer-science

- 18- Albaha University. (2017, January 1). Retrieved October 21, 2022, from <a href="https://bu.edu.sa/web/faculty-of-computer-science-and-information-technology">https://bu.edu.sa/web/faculty-of-computer-science-and-information-technology</a>
- 19- جامعة حائل. (n.d.). Retrieved October 21, 2022, from http://www.uoh.edu.sa/Pages/default.aspx
- 20- كلية الحاسب الآلي ونظم المعلومات | جامعة أم القرى (n.d.). Uqu.edu.sa. Retrieved October 21, 2022, from https://uqu.edu.sa/cis
- 21- جامعة الأميرة نورة بنت عبدالرحمن. (n.d.). Www.pnu.edu.sa. Retrieved October 21, 2022, from https://www.pnu.edu.sa/ar/Pages/Admissiondates.aspx
- 22- الكليات والتخصصات -22 / Majmaah University. (n.d.). Www.mu.edu.sa. Retrieved October 21, 2022, from <a href="https://www.mu.edu.sa/ar/deanships/deanship-of-admission-and-registration/1709">https://www.mu.edu.sa/ar/deanships/deanship-of-admission-and-registration/1709</a>
- 23- أقسام الكلية. Retrieved October 21, 2022, from

  <a href="https://www.su.edu.sa/ar/colleges/college-computing-and-information-technology-shaqra/college-departments">https://www.su.edu.sa/ar/colleges/college-computing-and-information-technology-shaqra/college-departments</a>
- 24- جدة / المملكة العربية السعودية (n.d.). Computing.uj.edu.sa. Retrieved October 21, 2022, from <a href="https://computing.uj.edu.sa/Home.aspx">https://computing.uj.edu.sa/Home.aspx</a>
- 25- عبدالعزيز, جامعة الملك . (n.d.). القبول . (www.kau.edu.sa. Retrieved October 21, 2022, from https://www.kau.edu.sa/Pages-282196.aspx



## **Appendices**

#### Source code

```
from experta import *
class uni(Fact):
#======TABUK=======
class myUniversity(KnowledgeEngine):
 @Rule(OR(AND(uni(D=('b'))), uni(city=('t')), uni(gender=('f')), uni(major=(
'cs'))), AND( uni(D=('b') ), uni(city=('t')), uni(gender=('m')), uni (major=('cs
'))),AND( uni(D=('m') ), uni(city=('t')),uni(gender=('f')),uni(major=('ai'))
), AND( uni(D=('m')), uni(city=('t')), uni(gender=('m')), uni(major=('ai'))), A
ND( uni(D=('m') ), uni(city=('t')), uni(gender=('f')), uni(major=('s'))), AND(
uni(D=('m')), uni(city=('t')), uni(gender=('male')), uni(major=('s'))), AND( u
ni(D=('m')), uni(city=('t')),uni(gender=('f')),uni(major=('d'))),AND( uni(D
=('m') ), uni(city=('t')),uni(gender=('f')),uni(major=('d')))))
 def Tabuk University(self):
   print("Tabuk University")
@Rule(OR(AND(uni(D=('b'))), uni(city=('ar')), uni(gender=('f')), uni(major=
('cs')), AND( uni(D=('b')), uni(city=('ar')), uni(gender=('m')), uni(major=('
cs')))))
 def Northern Borders University(self):
   print("Northern Boroders University")
#======hail========
 @Rule(OR(AND(uni(D=('b'))), uni(city=('h')), uni(gender=('f')), uni(major=(
'cs'))), AND( uni(D=('b') ), uni(city=('h')), uni(gender=('m')), uni (major=('cs
'))),AND( uni(D=('m') ), uni(city=('h')),uni(gender=('f')),uni(major=('ai'))
), AND( uni(D=('m')), uni(city=('h')), uni(gender=('m')), uni(major=('ai'))), A
ND( uni(D=('m') ), uni(city=('h')), uni(gender=('f')), uni(major=('s'))), AND(
uni(D=('m')), uni(city=('h')), uni(gender=('m')), uni(major=('s'))), AND( uni(
D=('d') ), uni(city=('h')), uni(gender=('f')), uni(major=('s'))), AND( uni(D=('
d') ), uni(city=('h')),uni(gender=('m')),uni(major=('s')))))
 def University of Hail(self):
   print("University of Hail")
#======jwaf=======
 @Rule(OR(AND(uni(D=('d')), uni(city=('j')), uni(gender=('f')), uni(major=(
'n'))), AND( uni(D=('d') ), uni(city=('j')), uni(gender=('m')), uni(major=('n')
)), AND( uni(D=('d') ), uni(city=('j')), uni(gender=('f')), uni(major=('d'))), A
ND( uni(D=('d') ), uni(city=('j')), uni(gender=('m')), uni(major=('d'))), AND(
uni(D=('b')), uni(city=('j')), uni(gender=('f')), uni(major=('cs'))), AND( uni
```

```
(D=('b')), uni(city=('j')), uni(gender=('m')), uni(major=('cs'))), AND( uni(D=
('b') ), uni(city=('j')), uni(gender=('f')), uni(major=('se'))), AND( uni(D=('b
') ), uni(city=('j')),uni(gender=('m')),uni(major=('se'))),AND( uni(D=('m')
), uni(city=('j')),uni(gender=('f')),uni(major=('d'))),AND( uni(D=('m') ),
uni(city=('j')), uni(gender=('m')), uni(major=('d'))), AND( uni(D=('m') ), uni(
city=('j')),uni(gender=('f')),uni(major=('ai'))),AND( uni(D=('m') ), uni(cit
v=('i')), uni(gender=('m')), uni(major=('ai'))), AND( uni(D=('m')), uni(city=(
'j')),uni(gender=('f')),uni(major=('s'))),AND( uni(D=('m') ), uni(city=('j')
), uni (gender=('m')), uni (major=('s'))))
 def Al Jawf University(self):
   print("Al Jawf University")
@Rule(OR(AND(uni(D=('b'))), uni(city=('n')), uni(gender=('f')), uni(major=(
'cs'))), AND( uni(D=('b') ), uni(city=('n')), uni(gender=('m')), uni(major=('cs
')))))
 def Najran University(self):
   print("Najran University")
#=====Baha=======
 @Rule(OR(AND(uni(D=('b'))), uni(city=('ba')),uni(gender=('f')),uni(major=
('cs'))), AND( uni(D=('b') ), uni(city=('ba')), uni(gender=('m')), uni(major=('
cs'))), AND (uni (D=('m')), uni (city=('ba')), uni (gander=('f')), uni (major=('ai')))
,AND(uni(D=('m')),uni(city=('ba')),uni(gander=('m')),uni(major=('ai'))),AND(u
ni(D=('m')),uni(city=('ba')),uni(gander=('m')),uni(major=('s')))))
 def AlBaha University(self):
   print("Al-Baha University")
@Rule(OR(AND(uni(D=('d')), uni(city=('jz')),uni(gender=('f')),uni(major=
('cs'))), AND( uni(D=('d') ), uni(city=('jz')), uni(gender=('m')), uni(major=('
cs'))), AND( uni(D=('b') ), uni(city=('jz')), uni(gender=('f')), uni(major=('cs
'))), AND( uni(D=('b') ), uni(city=('jz')), uni(gender=('m')), uni(major=('cs')
)))))
 def Jazan University(self):
   print("Jazan University")
#=====abha======
 @Rule(OR(AND(uni(D=('d')), uni(city=('ab')), uni(gender=('m')), uni(major=
('n'))), AND( uni(D=('d') ), uni(city=('ab')), uni(gender=('f')), uni(major=('p
'))),AND( uni(D=('d') ), uni(city=('ab')),uni(gender=('m')),uni(major=('p'))
), AND( uni(D=('b')), uni(city=('ab')), uni(gender=('f')), uni(major=('cs'))),
AND( uni(D=('b') ), uni(city=('ab')),uni(gender=('m')),uni(major=('cs'))),AN
D( uni(D=('m')), uni(city=('ab')), uni(gender=('f')), uni(major=('cs'))), AND(
uni(D=('m')), uni(city=('ab')),uni(gender=('m')),uni(major=('cs'))),AND( u
```

```
ni(D=('m')), uni(city=('ab')),uni(gender=('f')),uni(major=('s'))),AND( uni(
D=('m') ), uni(city=('ab')),uni(gender=('m')),uni(major=('s'))),AND( uni(D=(
'm') ), uni(city=('ab')),uni(gender=('f')),uni(major=('d'))),AND( uni(D=('m'
) ), uni(city=('ab')), uni(gender=('m')), uni(major=('d')))))
 def King Khalid University(self):
   print("King Khalid University")
@Rule(OR(AND(uni(gender=('m')), uni(major=('cs')), uni(city=('q')), uni(D=('
b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('q')), uni(D=('b'
), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('q')), uni(D=('m'))), A
ND( uni(gender=('m')), uni (major=('n')), uni(city=('q')), uni(D=('m'))), AND(
uni(gender=('f')), uni (major=('n')), uni(city=('q')),uni(D=('m')))))
 def QassimUni(self):
   print("Qassim university")
#======#Eastern Province====================
 @Rule(OR(AND(uni(gender=('m')), uni(major=('ai')), uni(city=('e')), uni(D=('b
'))),AND( uni(gender=('f')), uni (major=('ai')), uni(city=('e')),uni(D=('b')
)), AND( uni(gender=('m')), uni (major=('cs')), uni(city=('e')), uni(D=('b')))
,AND( uni(gender=('f')), uni (major=('cs')), uni(city=('e')),uni(D=('b'))),
AND( uni(gender=('m')), uni (major=('s')), uni(city=('e')), uni(D=('b'))), AND
( uni(gender=('f')), uni (major=('s')), uni(city=('e')), uni(D=('b'))), AND( u
ni(gender=('m')), uni (major=('cs')), uni(city=('e')), uni(D=('m'))), AND( uni
                                   uni(city=('e')),uni(D=('m')))))
(gender=('f')), uni (major=('cs')),
 def ima Abdulrahman(self):
   print("imam Abdulrahman bin Faisal university")
 @Rule(OR(AND( uni(gender=('m')), uni (major=('ai')), uni(city=('e')), uni(D=
('m'))), AND( uni(gender=('f')), uni (major=('ai')), uni(city=('e')), uni(D=(
'm'))), AND( uni(gender=('m')), uni (major=('s')), uni(city=('e')), uni(D=('m'
))), AND( uni(gender=('f')), uni (major=('s')), uni(city=('e')), uni(D=('m'))
), AND( uni(gender=('m')), uni (major=('e')), uni(city=('e')), uni(D=('m'))),
AND( uni(gender=('f')), uni (major=('e')), uni(city=('e')), uni(D=('m'))), AND
( uni(gender=('m')), uni (major=('n')), uni(city=('e')), uni(D=('m'))), AND( u
ni(gender=('f')), uni (major=('n')), uni(city=('e')), uni(D=('m'))), AND( uni(
gender=('m')), uni (major=('n')), uni(city=('e')), uni(D=('p'))), AND( uni(gen
der=('f')), uni (major=('n')), uni(city=('e')), uni(D=('p'))), AND( uni(gender=
('m')), uni (major=('cs')), uni(city=('e')), uni(D=('b'))), AND( uni(gender=('
f')), uni (major=('cs')), uni(city=('e')), uni(D=('b'))), AND( uni(gender=('m
')), uni (major=('cs')), uni(city=('e')), uni(D=('m'))), AND( uni(gender=('f')
), uni (major=('cs')),
                         uni(city=('e')),uni(D=('m'))),AND( uni(gender=('
```

```
m')), uni (major=('e')), uni(city=('e')), uni(D=('b'))), AND( uni(gender=('f'))
, uni (major=('e')), uni(city=('e')), uni(D=('b')))))
  def King Fahd University(self):
   print("King Fahd University of Petroleum & Minerals")
 @Rule(OR(AND( uni(gender=('m')), uni (major=('s')), uni(city=('e')), uni(D=
('b'))), AND( uni(gender=('f')), uni (major=('s')), uni(city=('e')), uni(D=('b
'))),AND( uni(gender=('m')), uni (major=('e')), uni(city=('e')),uni(D=('b')))
,AND( uni(gender=('f')), uni (major=('e')), uni(city=('e')), uni(D=('b'))),AND
( uni(gender=('m')), uni (major=('cs')), uni(city=('e')), uni(D=('b'))), AND(
uni(gender=('f')), uni (major=('cs')), uni(city=('e')), uni(D=('b')))))
  def University of Hafr AlBatin(self):
   print("University of Hafr Al Batin")
 @Rule(OR(AND( uni(gender=('m')), uni (major=('cs')), uni(city=('e')), uni(D
=('b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('e')), uni(D=
('b'))), AND( uni(gender=('m')), uni (major=('e')), uni(city=('e')), uni(D=('b'
))), AND( uni(gender=('f')), uni (major=('e')), uni(city=('e')), uni(D=('b'))))
  def prince Mohammad bin Fahd university(self):
   print("prince Mohammad bin Fahd university ")
 @Rule(OR(AND( uni(gender=('m')), uni (major=('n')), uni(city=('e')), uni(D=
('b'))), AND( uni(gender=('f')), uni (major=('n')), uni(city=('e')), uni(D=('b'
))), AND( uni(gender=('m')), uni (major=('cs')), uni(city=('e')), uni(D=('b'))
), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('e')), uni(D=('b')))
,AND( uni(gender=('m')), uni (major=('cs')), uni(city=('e')),uni(D=('m'))),A
ND( uni(gender=('f')), uni (major=('cs')),
                                               uni(city=('e')),uni(D=('m'))
), AND( uni(gender=('m')), uni (major=('s')), uni(city=('e')), uni(D=('m'))), A
ND( uni(gender=('f')), uni (major=('s')), uni(city=('e')), uni(D=('m')))))
  def King Faisal University (self):
   print("King Faisal University ")
            =====riaydh=========
#riaydh
```

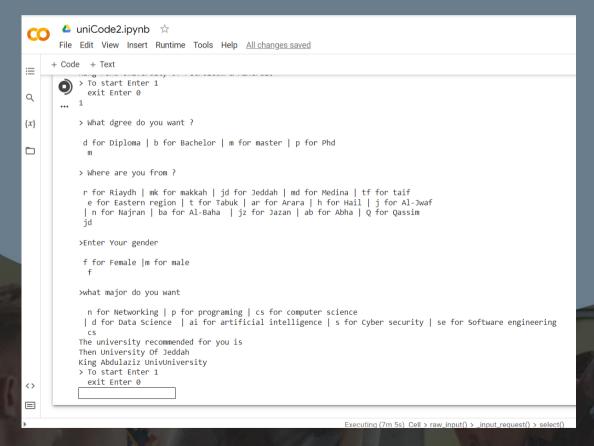
```
@Rule(OR(AND( uni(gender=('m')), uni (major=('cs')), uni(city=('r')), uni(
D=('b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('r')), uni(D=
('b'))), AND( uni(gender=('m')), uni (major=('cs')), uni(city=('r')), uni(D=('
m'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('r')), uni(D=('m')
))))
  def imam Muhammad Saud(self):
     print ("imam Muhammad ibn Saud Islamic university
                                                         ")
 @Rule(OR(AND( uni(gender=('m')), uni (major=('cs')), uni(city=('r')), uni(D=
('p'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('r')), uni(D=
('p'))), AND( uni(gender=('m')), uni (major=('e')), uni(city=('r')), uni(D=('m
'))), AND( uni(gender=('f')), uni (major=('e')), uni(city=('r')), uni(D=('m'
))), AND( uni(gender=('m')), uni (major=('e')), uni(city=('r')), uni(D=('p'))
), AND( uni(gender=('f')), uni (major=('e')), uni(city=('r')), uni(D=('p'))), A
ND( uni(gender=('m')), uni (major=('e')), uni(city=('r')), uni(D=('b'))), AN
D( uni(gender=('f')), uni (major=('e')), uni(city=('r')), uni(D=('b'))), AND(
uni(gender=('m')), uni (major=('cs')), uni(city=('r')), uni(D=('m'))), AND( un
i(gender=('f')), uni (major=('cs')), uni(city=('r')), uni(D=('m'))), AND( uni(g
ender=('m')), uni (major=('cs')), uni(city=('r')), uni(D=('b'))), AND( uni(ge
nder=('f')), uni (major=('cs')), uni(city=('r')), uni(D=('b')))))
 def king Saud university(self):
   print("king Saud university")
#-
 @Rule(OR(AND( uni(gender=('m')), uni (major=('ai')), uni(city=('r')), uni
(D=('m'))), AND( uni(gender=('f')), uni (major=('ai')), uni(city=('r')), uni(D=
('m'))), AND( uni(gender=('m')), uni (major=('d')), uni(city=('r')), uni(D=('
m'))), AND( uni(gender=('f')), uni (major=('d')), uni(city=('r')), uni(D=('m'
))), AND( uni(gender=('m')), uni (major=('s')), uni(city=('r')), uni(D=('m'))
), AND( uni(gender=('f')), uni (major=('s')), uni(city=('r')), uni(D=('m'))),
AND( uni(gender=('m')), uni (major=('e')), uni(city=('r')), uni(D=('b'))), A
ND( uni(gender=('f')), uni (major=('e')), uni(city=('r')), uni(D=('b'))), AND(
uni(gender=('m')), uni (major=('cs')), uni(city=('r')), uni(D=('b'))), AND(
uni(gender=('f')), uni (major=('cs')), uni(city=('r')), uni(D=('b')))))
  def prince Sattam(self):
    print("prince Sattam bin Abdulaziz university ")
  @Rule(OR(AND(uni(gender='m'), uni(major='p'), uni(city='r'), uni(D='d')), AN
D(uni(gender='f'), uni(major='cs'), uni(city='r'), uni(D='b')), AND(uni(gender
='m'), uni(major='cs'), uni(city='r'), uni(D='b')))
  def The Majmaah UnivUniversity(self):
      print(" Majmaah University ")
```

```
@Rule(OR(AND(uni(gender='f'), uni(major='cs'), uni(city='r'), uni(D='b')),A
ND(uni(gender='m'), uni(major='cs'), uni(city='r'), uni(D='b')), AND(uni(gende
r='f'), uni(major='se'), uni(city='r'), uni(D='b')), AND(uni(gender='m'), uni(
major='se'), uni(city='r'), uni(D='b'))))
  def Shaqra UniUniversity(self):
    print(" Shaqra University ")
  @Rule(OR(AND(uni(gender='f'), uni(major='p'), uni(city='r'), uni(D='d')), AN
D(uni(gender='f'), uni(major='cs'), uni(city='r'), uni(D='b')), AND(uni(gender
='f'), uni(major='ds'), uni(city='r'), uni(D='b')), AND(uni(gender='f'), uni(m
ajor='s'), uni(city='r'), uni(D='b')), AND(uni(gender='f'), uni(major='ai'), u
ni(city='r'), uni(D='b')), AND(uni(gender='f'), uni(major='ds'), uni(city='r')
, uni(D='m'))))
  def Princess Nourah UniUniversity (self):
      print(" Princess Nourah Bint Abdulrahman University ")
#======Jeddah======================
  @Rule(OR(AND(uni(D='b'), uni(city='jd'), uni(gender='m'), uni(major='cs'))
,AND( uni(D='b'), uni(city='jd'), uni(gender='f'), uni(major='cs')),AND( uni(
D='m'), uni(city='jd'), uni(gender='f'), uni(major='cs')), AND(uni(degree='m')
, uni(city='jd'), uni(gender='m'), uni(major='cs')), AND(uni(degree='p'), uni(
city='jd'), uni(gender='f'), uni(major='cs')), AND(uni(degree='p'), uni(city='
|jd'), uni(gender='m'), uni(major='cs'))))
  def KAU(self):
      print("King Abdulaziz UnivUniversity ")
  @Rule(OR(AND(uni(gender='f'), uni(major='cs'), uni(city='jd'), uni(D='b'))
,AND(uni(gender='f'), uni(major='s'), uni(city='jd'), uni(D='b')), AND(uni(ge
nder='f'), uni(major='se'), uni(city='jd'), uni(D='b'))
                                                         , AND (uni (gender='f'
), uni(major='n'), uni(city='jd'), uni(D='b')) ,AND(uni(gender='f'), uni(maj
or='cs'), uni(city='jd'), uni(D='m')) ,AND(uni(gender='m'), uni(major='cs'),
uni(city='jd'), uni(D='m')) ,AND(uni(gender='f'), uni(major='s'), uni(city=
'jd'), uni(D='m')) ,AND(uni(gender='m'), uni(major='s'), uni(city='jd'), uni
(D='m')) ,AND(uni(gender='f'), uni(major='ds'), uni(city='jd'), uni(D='m'))
,AND(uni(gender='m'), uni(major='ds'), uni(city='jd'), uni(D='m'))))
  def Jeddah UnivUniversity(self):
      print("Then University Of Jeddah ")
        @Rule(OR(AND(uni(gender='f'), uni(major='cs'), uni(city='mk'), uni(D='b')),
AND(uni(gender='m'), uni(major='cs'), uni(city='mk'), uni(D='b')), AND(uni(gen
der='f'), uni(major='ai'), uni(city='mk'), uni(D='m')), AND(uni(gender='m'), u
ni(major='ai'), uni(city='mk'), uni(D='m')), AND(uni(gender='f'), uni(major='c
s'), uni(city='mk'), uni(D='m')), AND(uni(gender='m'), uni(major='cs'), uni(ci
ty='mk'), uni(D='m'))))
```

```
def Umm AlQura UniUniversity(self):
   print("Then Umm Al-Qura University")
@Rule(OR(AND(uni(gender=('m')), uni(major=('cs')), uni(city=('tf')), uni(D=(
'b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('tf')), uni(D=('
b')))))
 def Taif University(self):
   print("Taif University ")
@Rule(OR(AND(uni(gender=('m')), uni(major=('cs')), uni(city=('md')), uni(D=(
'b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('md')),uni(D=('
b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('md')), uni(D=('m'
))), AND( uni(gender=('m')), uni (major=('cs')), uni(city=('md')), uni(D=('m'))
))))
 def Taibah University(self):
   print("Taibah University ")
 @Rule(OR(AND(uni(gender=('m')), uni(major=('cs')), uni(city=('md')), uni(D=(
'b'))), AND( uni(gender=('f')), uni (major=('cs')), uni(city=('md')), uni(D=('
b'))), AND( uni(gender=('f')), uni (major=('d')), uni(city=('md')), uni(D=('m')
)), AND( uni(gender=('f')), uni (major=('d')), uni(city=('md')), uni(D=('m'))))
 def IslamicUniversityofMadinah(self):
   print("Islamic University of Madinah")
expert System that will help youتخصصی print("******
to chose a university ***********")
n=int(input("\n\n) To start Enter 1 \n exit Enter <math>0\n")
while n > 0:
 engine=myUniversity()
 engine.reset()
 engine.declare(uni(D=input("\n> What dgree do you want ? \n\n d for Diplom
a | b for Bachelor | m for master | p for Phd \n "),city=input("\n> Where ar
e you from ? \n \n r for Riaydh | mk for makkah | jd for Jeddah | md for Medi
na | tf for taif \n e for Eastern region | t for Tabuk | ar for Arara | h fo
r Hail | j for Al-Jwaf \n | n for Najran | ba for Al-
Baha | jz for Jazan | ab for Abha | Q for Qassim \n "), gender=input("\n>Ent
er Your gender \n\n f for Female |m for male\n "), major=input("\n>what major
do you want \n\n n for Networking | p for programing | cs for computer sci
ence \n | d for Data Science | ai for artificial intelligence | s for Cyber
security | se for Software engineering \n ")))
 print("The university recommended for you is")
 engine.run()
 n=int(input("> To start Enter 1 \n exit Enter 0\n"))
print("Thank you <3")</pre>
```

#### Screenshots













```
△ uniCode2.ipynb ☆
        File Edit View Insert Runtime Tools Help All changes saved
      + Code + Text
\equiv
            > To start Enter 1
               exit Enter 0
Q
             1
             > What dgree do you want ?
{x}
              d for Diploma | b for Bachelor | m for master | p for Phd
р
             > Where are you from ?
              r for Riaydh | mk for makkah | jd for Jeddah | md for Medina | tf for taif
              e for Eastern region | t for Tabuk | ar for Arara | h for Hail | j for Al-Jwaf
| n for Najran | ba for Al-Baha | jz for Jazan | ab for Abha | Q for Qassim
             >Enter Your gender
              f for Female |m for male
             >what major do you want
               n for Networking | p for programing | cs for computer science
              | d for Data Science | ai for artificial intelligence | s for Cyber security | se for Software engineering
             The university recommended for you is
             King Fahd University of Petroleum & Minerals
             > To start Enter 1
               exit Enter 0
<>
```

