

CYPHER SCRIPT FOR POULATING GRAPH DATABASE

```
CREATE (UNAM:University{id:1,name:'National Autonomus University of Mexico'})
CREATE (ITAM:University{id:2,name:'Tecnological Autonomous Institute of Mexico'})
CREATE (UAM:University{id:3,name:'Autonomus Metropolitan University '})
CREATE (IPN:University{id:4,name:'National PoliTechnical Institute '})
CREATE (UVM:University{id:5,name:'University del Valle of Mexico'})
CREATE (ITESM:University{id:6,name:'Tecnological Institute of High Studies of Monterrey'})
CREATE (HWU:University{id:7,name:'Heriot Watt University',country:'Scotland'})
CREATE (UUE:University{id:8,name:'European University',country:'Europe'})
CREATE (UUSA:University{id:8,name:'American University',country:'United States of North America'})
```

```
CREATE (FI:School{id:1,name:'School of Engineering'})
CREATE (FCA:School{id:2,name:'School of Administration'})
CREATE (FC:School{id:3,name:'School of Sciences'})
CREATE (FESAC:School{id:4,name:'School of High Studies Acatlan'})
CREATE (FESAR:School{id:5,name:'School of High Studies Aragon'})
CREATE (FESCU:School{id:6,name:'School of High Studies Cuautitlan'})
```

```
CREATE (II:Institute{id:7,name:'Institute of Engineering'})
CREATE (ICN:Institute{id:8,name:'Institute of Sciences Nucleares'})
CREATE (IIMAS:Institute{id:9,name:'Institute of Research on Applied Mathematics and in Systems'})
CREATE (ICAT:Institute{id:10,name:'Institute of Sciences Applied y Tecnologia '})
CREATE (IM:Institute{id:11,name:'Institute of Mathematics'})
CREATE (ENESMO:School{id:12,name:'National School of High Studies Morelia'})
CREATE (DGTIC:UNAM_Entity{id:13,name:'General Directorate of Computation and Technology of Information and Communication'})
```

```
CREATE (TAXA:TECAX{id:1,name:'Technical Academic',type:'Auxiliar',category:'A'})
CREATE (TAXB:TECAX{id:2,name:'Technical Academic',type:'Auxiliar',category:'B'})
CREATE (TAXC:TECAX{id:3,name:'Technical Academic',type:'Auxiliar',category:'C'})
```

```
CREATE (TATA:TECAT{id:1,name:'Technical Academic',type:'Titular',category:'A'})
CREATE (TATB:TECAT{id:2,name:'Technical Academic',type:'Titular',category:'B'})
CREATE (TATC:TECAT{id:3,name:'Technical Academic',type:'Titular',category:'C'})
```

```
CREATE (TAAA:TECAA{id:1,name:'Technical Academic',type:'Associate',category:'A'})
CREATE (TAAB:TECAA{id:2,name:'Technical Academic',type:'Associate',category:'B'})
```

```

CREATE (TAAC:TECAA{id:3,name:'Technical Academic',type:'Associate',category:'C'})

CREATE (PCTA:PCT{id:1,name:'Professor of Carrera Titular A'})
CREATE (PCTB:PCT{id:2,name:'Professor of Carrera Titular B'})
CREATE (PCTC:PCT{id:3,name:'Professor of Carrera Titular C'})

CREATE (PCAA:PCA{id:1,name:'Professor of Carrera Associate A'})
CREATE (PCAB:PCA{id:2,name:'Professor of Carrera Associate B'})
CREATE (PCAC:PCA{id:3,name:'Professor of Carrera Associate C'})

CREATE (ICTA:ICT{id:1,name:'Researcher of Carrera Titular A'})
CREATE (ICTB:ICT{id:2,name:'Researcher of Carrera Titular B'})
CREATE (ICTC:ICT{id:3,name:'Researcher of Carrera Titular C'})

CREATE (ICAA:ICT{id:1,name:'Researcher of Carrera Associate A'})
CREATE (ICAB:ICT{id:2,name:'Researcher of Carrera Associate B'})
CREATE (ICAC:ICT{id:3,name:'Researcher of Carrera Associate C'})

CREATE (CCTC:KnowledgeField{id:1,name:'Theory of la Computacion'})
CREATE (CCIS:KnowledgeField{id:2,name:'Software Engineering'})
CREATE (CCBD:KnowledgeField{id:3,name:'Databases'})
CREATE (CCRS:KnowledgeField{id:4,name:'Network and Security'})
CREATE (CCIA:KnowledgeField{id:5,name:'Artificial Intelligence'})
CREATE (CCSAV:KnowledgeField{id:6,name:'Virtual Environments'})
CREATE (CCCC:KnowledgeField{id:7,name:'Scientific computing'})
CREATE (CCCD:KnowledgeField{id:8,name:'Data Sciences'})

CREATE (IC:GradoAcademic{id:1,name:'Computing enginner'})
CREATE (IE:GradoAcademic{id:1,name:'Electric/Electronic engineer'})
CREATE (IME:GradoAcademic{id:1,name:'Mechanical engineer'})

CREATE (MAT:GradoAcademic{id:1,name:'Bsc. Mathematics'})
CREATE (FIS:GradoAcademic{id:1,name:'Bsc. Physics'})
CREATE (LCC:GradoAcademic{id:2,name:'Bsc. Computer Sciences'})
CREATE (ACT:GradoAcademic{id:3,name:'Actuarial'})

CREATE (DI:GradoAcademic{id:4,name:'Doctor in Engineering'})
CREATE (MI:GradoAcademic{id:5,name:'Master in Engineering'})
CREATE (MC:GradoAcademic{id:6,name:'Master in Sciences'})
CREATE (DC:GradoAcademic{id:7,name:'Doctor in Sciences'})

CREATE (STIMULATE:STIMULUS{id:1,name:'STIMULATE Academics'})

CREATE (SNIC:SNI{id:1,name:'National System of Researchers', acronym:'SNI-C',
level:'Candidato'})
CREATE (SNI1:SNI{id:2,name:'National System of Researchers', acronym:'SNI-I', level:'I'})
CREATE (SNI2:SNI{id:3,name:'National System of Researchers', acronym:'SNI-II', level:'II'})
CREATE (SNI3:SNI{id:4,name:'National System of Researchers', acronym:'SNI-III', level:'III'})

CREATE (PRIDEA:PRIDE{id:1,name:'Academic Funding Program',acronym:'PRIDE', level:'A'})

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```
CREATE (PRIDEB:PRIDE{id:2,name:'Academic Funding Program',acronym:'PRIDE', level:'B'})
CREATE (PRIDEC:PRIDE{id:3,name:'Academic Funding Program',acronym:'PRIDE', level:'C'})
CREATE (PRIDED:PRIDE{id:4,name:'Academic Funding Program',acronym:'PRIDE', level:'D'})
```

```
CREATE (ESTIMPAIPA:Paipa{id:5,acronym:'PAIPA'})
CREATE (ESTIMCATCON:Conacyt{id:6,name:'Catedra CONACYT'})
```

```
CREATE (ACVEAR:Academic {id:1,name:'Veronica
Esther',apPat:'Arriola',apMat:'Rios',gender:'female'})
CREATE (ACPBS:Academic{id:2,name:'Pablo',apPat:'Barrera',apMat:'Sanchez',gender:'male'})
CREATE (ACHACC:Academic{id:3,name:'Humberto
Andres',apPat:'Carrillo',apMat:'Calvet',gender:'male'})
CREATE (ACJDFP:Academic{id:4,name:'Jose
David',apPat:'Flores',apMat:'Peñaloza',gender:'male'})
CREATE (ACJJGC:Academic{id:5,name:'Jose of
Jesus',apPat:'Galaviz',apMat:'Casas',gender:'male'})
CREATE (ACSNHG:Academic{id:6,name:'Sofia
Natalia',apPat:'Galicia',apMat:'Haro',gender:'male'})
CREATE (ACMPA:Academic{id:7,name:'Maria del
Pilar',apPat:'Angeles',apMat:'.',gender:'female',teloficina:'56233500 x
1376',corrofi:'pilarang@cvicom.unam.mx'})
CREATE (ACFGU:Academic{id:7,name:'Francisco',apPat:'Garcia',apMat:'Ugalde',gender:'male'})
CREATE
(ACBER:Academic{id:7,name:'Boris',apPat:'Escalante',apMat:'Ramirez',gender:'male',teloficina:'56
233500 x 1375',corrofi:'boris@cvicom.unam.mx'})
```

```
// -- lineas of research of ICAT
```

```
CREATE (LIAI:ResearchLine{id:1,name:'Analysis of Images'})
CREATE (LIV:ResearchLine{id:1,name:'Visualization'})
CREATE (LIB:ResearchLine{id:1,name:'Bioinformatics'})
CREATE (LIIBFC:ResearchLine{id:2,name:'Imagenology, Physics, Computing'})
CREATE (LIUIDT:ResearchLine{id:3,name:'Technological Research and Development'})
CREATE (LIMSP:ResearchLine{id:4,name:'Modeling'})
CREATE (LISI:ResearchLine{id:5,name:'Intelligent Systems'})
CREATE (LIESIE:ResearchLine{id:6,name:'Interactive education'})
CREATE (LITE:ResearchLine{id:7,name:'Telematics for education'})
CREATE (LIAV:ResearchLine{id:8,name:'Acoustics'})
```

```
// -- GRUPOS AcademicS of research ICAT --
```

```
CREATE (GAV:AcademicGroup{id:1,name:'Acoustics',type:'research'})
CREATE (GAIVB:AcademicGroup{id:2,name:'Analysis of Images, Visualization and
Bioinformatics',type:'research'})
CREATE (GCSC:AcademicGroup{id:3,name:'Cibernetica y sistemas complejos',type:'research'})
CREATE (GCN:AcademicGroup{id:4,name:'Neural Computing',type:'research'})
CREATE (GESIE:AcademicGroup{id:5,name:'Education spaces',type:'research'})
CREATE (GIBFC:AcademicGroup{id:6,name:'Imagenology',type:'research'})
CREATE (GSI:AcademicGroup{id:7,name:'Intelligent Systems',type:'research'})
CREATE (GUIDT:AcademicGroup{id:8,name:'Technological Development',type:'research'})
```

```
// -- GRUPOS AcademicS of F Engineering--
```

```

CREATE (GBD:AcademicGroup{id:7,name:'group Databases',type:'research'})
CREATE (GAI:AcademicGroup{id:15,name:'Group Image Analysis',type:'research'})

// -- GRUPOS AcademicS of FES ACATLAN --
CREATE (GRAIN:AcademicGroup{id:9,name:'Intelligent Reasoning',type:'research'})

// --lineas of research fes acatlan

CREATE (LIIA:ResearchLine{id:10,name:'Artificial Intelligence'})
CREATE (LISBC:ResearchLine{id:11,name:'Knowledge Systems'})
CREATE (LITRC:ResearchLine{id:12,name:'Qualitative reasoning and representation'})
CREATE (LILD:ResearchLine{id:13,name:'Descriptive Logic'})

CREATE (PYVIZEXPERT:Project{id:1,name:'Expert System for the evaluation of visual
pathologies'})

// --ProjectS AcademicS FES ARAGON

CREATE (PYPREP:Project{id:2,name:'Audit of software to the systems of the Preliminary
Electoral Results Program'})
CREATE (PYELGA:Project{id:3,name:'Elga Internet'})

// --ProjectS AcademicS FES CUAUTITLAN
CREATE (PYPIAPI1616CPL:Project{id:4,name:'Services of Advanced Computing for the research
on Sciences and Engineering'})
CREATE (PYPAPIITIN113316:Project{id:5,name:'Algebraic Structures Related to Quantum
Groups and their Applications'})
CREATE (PYPIAPI1634:Project{id:6,name:'Algebraic Structures and their Applications'})
CREATE (PYPAPIME5322117:Project{id:7,name:'Mathematical Modeling and Computational
Simulation and Optimization of Chemical Processes'})
CREATE (PYAUCCCCTCA:Project{id:8,name:'Ultrasonic applications and cryogels of meat cuts
for the control of the size of crystals of water'})
CREATE (PYPAPIITIN111628:Project{id:7,name:'Phenomenology of quarks and leptons in
extended models'})
CREATE (PYPIAPI1528:Project{id:9,name:'Computational Applications in Modern Physics'})
CREATE (PYPAPIITIN218118:Project{id:10,name:'Complexes of copper (II) and Zinc (II) with
anti-inflammatory drugs'})
CREATE (PYSIIFCU:Project{id:11,name:'Integral System of Information of the FES Cuautitlan'})

// -- lineas of research of ENES MORELIA --
CREATE (LICB:ResearchLine{id:14,name:'Biological Sciences'})
CREATE (:ResearchLine{id:15,name:'Data Sciences'})
CREATE (LICT:ResearchLine{id:16,name:'Earth Sciences'})
CREATE (LIAA:ResearchLine{id:17,name:'Machine learning'})

// -- GRUPOS AcademicS of enes morelia --
CREATE (GLAAD:AcademicGroup{id:10,name:'Advance Analysis Laboratory',type:'laboratory'})

```

```
// -- lineas of research of Direccion General of Computo y of Tecnologias of Informacion y
Comunicacion
CREATE (CONACYT:Financiamiento{id:1,name:'Consejo National of Ciencia y
Tecnologia',acronym:'CONACYT'})
CREATE (PAPIIT:Financiamiento{id:2,name:'Programa of Apoyo a Projects of Investigación e
Innovación Tecnológica',acronym:'PAPIIT'})
CREATE (PAPIME:Financiamiento{id:3,name:'Programa of Apoyo a Projects para la Innovación y
Mejoramiento of la Enseñanza',acronym:'PAPIME'})
```

```
// Projects PARA pilar angeles
CREATE (PYIN114413:Project{id:11,name:'Sistema Evaluador of Calidad of
data',type:'research',endingyear:2017})
CREATE (PY2018:Project{id:12,name:'Analysis of opinion on twitter about the use of
psychostimulant drugs in 10 states of the United States',type:'difusion',endingyear:2018})
CREATE (PY2010:Project{id:13,name:'Criteria of Quality and Priorities by role of user and type of
System of Information for making decisions regarding extensional inconsistencies in environments
of Multiple Databases',type:'research',endingyear:2010})
CREATE (PY2011:Project{id:14,name:'Calidad of data dentro of la Integración of Información
Empresarial',type:'research',endingyear:2011})
CREATE (PY20112:Project{id:15,name:'The use of Data Cleansing in mobile
devices',type:'research',endingyear:2011})
```

```
// ---- LIBROS PILAR ANGELES ---
```

```
CREATE (lib1:Libro{ISBN:'978-3-8484-6665-8',name:'Cuerpo of conocimiento y guía of
evaluación',editorial:'Academica Espanola',isbn:'978-3-8484-6665-8',anio:2018})
```

```
// ---- ARTICULOS PILAR ANGELES ---
```

```
CREATE (ARTMPA1:Articulo{ISBN:'1',vol:'3',num:'3',edit:'Elsevier',titulo:'Towards a
Representation of Enterprise Architecture based on Zachman Framework through OMG
Standards',nameevento:'30th International Conference on Software Engineering and Knowledge
Engineering SEKE
2018',alcance:'interNational',abstract:'nondisponible',numpages:11,rutapdf:'nohay',palabraClave1:'OM
G',palabraClave2:'duplication',palabraClave3:'record linkage',anio:2018})
```

```
CREATE (ARTMPA2:Articulo{ISBN:2,vol:'1',num:'1',edit:'Elsevier',titulo:'Mapeo entre la
ISO/IEC 29110-5-1-2 y el MAAGTICSI dirigido a Organizaciones Pequeñas Desarrolladoras of
Software en Mexico',nameevento:'XXI Ibero American Conference on Software Engineering
CIBSE 2018',alcance:'interNational',abstract:'no disponible',numpages:11,rutapdf:'no
disponible',palabraClave1:'MAGTICSI',palabraClave2:'PYME',palabraClave3:'Software',anio:2018
})
```

```
CREATE (ARTMPA3:Articulo{ISBN:'978-1-4673-6901-
5',vol:3,num:2,edit:'Elsevier',titulo:'Analysis of String encoding functions during of duplication
process',nameevento:'IEEE International Conference on Informatics Electronic and Vision, ICIEV
2015',alcance:'interNational',abstract:'no
disponible',numpages:12,rutapdf:'http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=7333979&u
rl=http%3A%2F%2Fieeexplore.ieee.org%2Fxp%2Fabs_all.jsp%3Farnumber%3D7333979',palabr
aClave1:'data matching',palabraClave2:'of duplication',palabraClave3:'record linkage',anio:2015})
```

CREATE (ARTMPA4:Articulo{ISBN:'978-1-4673-6901-5',edit:'IEEE',titulo:'Comparison of a Modified Spanish phonetic Soundex and Phonex coding functions during data matching process',nameevento:'IEEE International Conference on Informatics, Electronic and Vision, ICIEV 2015',alcance:'interNational',abstract:'no disponible',numpags:5,rutapdf:'http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=7334028&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel7%2F7322532%2F7333967%2F07334028.pdf%3Far number%3D7334028',palabraClave1:'data matching',palabraClave2:'of duplication',palabraClave3:'soundex',anio:2015}))

CREATE (ARTMPA5:Articulo{ISSN:'0268-4012',vol:33,num:6,edit:'Elsevier',titulo:'V+H: Hybrid architecture for DSS and OLTP',nameevento:'International Journal of Information Management',alcance:'interNational',abstract:'no disponible',numpags:7,rutapdf:'http://www.sciencedirect.com/science/article/pii/S0268401213000972',doi:10.1016/j.ijinfomgt.2013.08.006',palabraClave1:'Decision Support Systems',palabraClave2:'DSS',palabraClave3:'record linkage',anio:2013}))

CREATE (ARTMPA6:Articulo{ISSN:'1942-2628',vol:6,num:4,edit:'IARIA',titulo:'Multi Agent Distributed Data Mining by Ontologies',nameevento:'International Journal on Advances in Software',alcance:'interNational',abstract:'no disponible',numpags:11,rutapdf:'http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.643.3753&rep=rep1&type=pdf#page=96',palabraClave1:'data matching',palabraClave2:'de-duplication',palabraClave3:'record linkage',anio:2013}))

CREATE (ARTMPA7:Articulo{ISBN:'1942-262',vol:1,num:2,edit:'IARIA',titulo:'Subjective Assessment of Data Quality considering their Interdependencies and Relevance according to the Type of Information Systems',nameevento:'International Journal on Advances in Software',alcance:'interNational',abstract:'checar valor',numpags:11,rutapdf:'https://www.thinkmind.org/index.php?view=article&articleid=soft_v5_n34_2012_20',palabraClave1:'data matching',palabraClave2:'de-duplication',palabraClave3:'record linkage',anio:2015}))

CREATE (ARTMPA8:Articulo{ISSN:'1751-0465',vol:2,num:3,edit:'Inderscience Enterprise Ltd',titulo:'Managing Data Quality of integrated data with Known Provenance',nameevento:'International Journal of Information Quality',alcance:'interNational',abstract:'no disponible',numpags:19,rutapdf:'http://www.inderscienceonline.com/doi/abs/10.1504/IJIQ.2011.040671',palabraClave1:'data provenance',palabraClave2:'data lineage',palabraClave3:'data quality',anio:2011}))

CREATE (ARTMPA10:Articulo{ISSN:'1405-5546',vol:13,num:3,edit:'Computación y Sistemas',titulo:'Assessing data quality of integrated data by quality aggregation of its ancestors',nameevento:'Indice de Revistas Cientificas y Tecnologicas del CONACYT',alcance:'interNational',abstract:'checar valor',numpags:10,rutapdf:'http://www.scielo.org.mx/pdf/cys/v13n3/v13n3a7.pdf',palabraClave1:'data provenance',palabraClave2:'data lineage',palabraClave3:'data quality',anio:2010}))

// CREACION of ARTICULOS, SUS CAMPOS NECESARIOS:

// CREATE

(ARTMPA12:Articulo{ISBN:4,vol:"",num:"",edit:"",titulo:"",nameevento:"",alcance:'interNational'abstra

```
ct:",numpags:",rutapdf:",palabraClave1:'data matching',palabraClave2:'de-  
duplication',palabraClave3:'record linkage',anio:2015}}
```

```
// CAPTURA of RELACIONES  
// estructura of la unam  
// Las Schooles, Schools, Institutes y entidades que BELONG A LA UNAM  
CREATE  
(FI)-[:BELONG]->(UNAM)  
CREATE  
(FCA)-[:BELONG]->(UNAM)  
CREATE  
(FC)-[:BELONG]->(UNAM)  
CREATE  
(FESAC)-[:BELONG]->(UNAM)  
CREATE  
(FESAR)-[:BELONG]->(UNAM)  
CREATE  
(FESCU)-[:BELONG]->(UNAM)  
CREATE  
(II)-[:BELONG]->(UNAM)  
CREATE  
(ICN)-[:BELONG]->(UNAM)  
CREATE  
(IIMAS)-[:BELONG]->(UNAM)  
CREATE  
(ICAT)-[:BELONG]->(UNAM)  
CREATE  
(IM)-[:BELONG]->(UNAM)  
CREATE  
(ENESMO)-[:BELONG]->(UNAM)  
CREATE  
(DGTIC)-[:BELONG]->(UNAM)
```

```
CREATE  
(PRIDEA)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(PRIDEB)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(PRIDEC)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(PRIDED)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(SNIC)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(SNI1)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE  
(SNI2)<-[:ES_STIMULUS]-(STIMULATE)  
CREATE
```

(SNI3)<-[:ES_STIMULUS]-(STIMULATE)

// PILAR ANGELES LICENCIATURA, MAESTRIA Y DOCTORADO

CREATE

(ACMPA)<-[:BSCSTUDY]-(FI)-[:BSCSTUDY]->(ING)-[:BSCSTUDY]->(IC)

CREATE

(ACMPA)<-[:MASTERSTUDY]-(IIMAS)-[:MASTERSTUDY]->(MC)

CREATE

(ACMPA)<-[:PHDSTUDY]-(HWU)-[:PHDSTUDY]->(CC)

// BORIS LICENCIATURA, MAESTRIA Y DOCTORADO

CREATE

(ACBER)<-[:BSCSTUDY]-(FI)-[:BSCSTUDY]->(ING)-[:BSCSTUDY]->(IE)

CREATE

(ACBER)<-[:MASTERSTUDY]-(FI)-[:MASTERSTUDY]->(MI)

CREATE

(ACBER)<-[:PHDSTUDY]-(UUE)-[:PHDSTUDY]->(DI)

// TRABAJA EN LA UNAM

CREATE

(ACMPA)-[:WORKS_UNI]->(UNAM)

CREATE

(ACBER)-[:WORKS_UNI]->(UNAM)

// ADSCRITA A FI

CREATE

(ACMPA)-[:WORKSFOR]->(FI)

CREATE

(ACBER)-[:WORKSFOR]->(FI)

// ES Professor

Create

(ACMPA) -[:JOBPOSITION]-> (PCTA)

CREATE

(ACBER) -[:JOBPOSITION]-> (PCTC)

// HAS STIMULATE SNI Y PRIDE

CREATE

(ACMPA)<-[:HAS_SNI{fechafin:2015}]->(SNI2)

CREATE

(ACMPA)<-[:HAS_PRIDE{fechafin:2020}]->(PRIDE)

CREATE (ACBER)<-

[:HAS_SNI{fechafin:2018}]->(SNI2) CREATE

(ACMPA)<-[:HAS_PRIDE{fechafin:2020}]->(PRIDE)


```

// HAS LINEA of research
CREATE
(ACMPA)-[:LINEA_INVESTIGA]->(LICD)
CREATE
(ACMPA)-[:BELONG_GRUPO]->(GBD)

CREATE
(ACBER)-[:LINEA_INVESTIGA]->(LIAI)
CREATE
(ACBER)-[:BELONG_GRUPO]->(GAI)

//EL GRUPOS AcademicS Y CAMPOS of CONOCIMIENTO
// GRPO of BASE of data BELONG A LINEA of INVEST Y LA LINEA of INV BELONG
CAMPO CONOCIMIENTOS

CREATE
(GBD)-[:LINEA_INVESTIGA]->(LICD)
CREATE
(LICD)-[:BELONG_CAMPO_CONO]->(CCBD)

CREATE
(GAI)-[:LINEA_INVESTIGA]->(LIAI)
CREATE
(LIAI)-[:BELONG_CAMPO_CONO]->(CCSAI)

CREATE
(ACMPA)-[:HAS_Project]->(PYPAPIITIN114413)
CREATE
(ACFGU)-[:HAS_Project]->(PYPAPIITIN114413)

CREATE
(PYPAPIITIN114413)-[:BELONG_GRUPO]->(GBD)
CREATE
(PY2018)-[:BELONG_GRUPO]->(GBD)
CREATE
(PYPAPIITIN114413)-[:FINANCIADO_POR{ fechafin:2016}]->(PAPIIT)
CREATE
(PY2018)-[:FINANCIADO_POR{ fechafin:2018}]->(CONACYT)

// --- GRUPO Academic CON PILAR ANGELES
CREATE
(ACMPA)-[:ESTA_GRUPO_INV]->(GBD)
CREATE
(ACFGU)-[:ESTA_GRUPO_INV]->(GBD)

CREATE
(PY2018)-[:PRODUCES]->(ARTMPA1)
CREATE
(ACMPA)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA1)
CREATE

```

```

(ACBER)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA1)
CREATE
(PY2018)-[:PRODUCES]->(ARTMPA2)
CREATE
(ACMPA)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA2)
CREATE
(ACBER)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA2)
CREATE
(PYIN114413)-[:PRODUCES]->(ARTMPA3)
CREATE
(ACMPA)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA3)
CREATE
(ACFGU)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA3)
CREATE
(PYIN114413)-[:PRODUCES]->(ARTMPA4)
CREATE
(ACMPA)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA4)
CREATE
(ACFGU)-[:WRITE_ARTI{type:'conferencia'}]->(ARTMPA4)

```

QUERIES:

i. Given an area of knowledge, such as “Machine Learning” obtain the academic groups, full name and department where s(he) work of the members of the academic group.

```

MATCH (ga)-[r2:ESTA_GRUPO_INV]->(ac)-[r1:LINEA_INVESTIGA]->(li)
WHERE li.name='Data Sciences' RETURN ac.name AS Researcher, ga.name AS AcademicGroup

```

ii. Which is the School with the largest number of journal articles that have been published in the last year?

```

MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) WHERE
r1.tipo='conferencia' AND arti.anio=2018
RETURN en.name AS entidad, arti.titulo AS nomArt, arti.anio AS year ORDER BY nomArt, year
DESC

```

iii. What are the keywords most frequently used in the conference articles?

```

MATCH (aca)-[r:WRITE_ARTI]->(arti) WHERE r.tipo='conferencia' return
arti.palabraClave1, arti.palabraClave2, arti.palabraClave3, arti.palabraClave4

```

iv. Which academics and from which School have published articles? Ordered per year

```

MATCH (arti)<-[r1:WRITE_ARTI]-(ac)-[r2:WORKFOR]->(en)
where r1.tipo='conferencia'
RETURN ac.name AS academico, arti.titulo AS articulo, r1.tipo AS tipo, arti.anio AS anio
order by arti.anio DESC

```

Printscreens of data and queries

neo4j@bolt://localhost:7687 - Neo4j Browser

File Edit View Window Help Developer

Node Labels

- *(293) Academic
- AcademicGroup Artículo
- Conacyt Financiamiento
- GradoAcademic ICT Institute
- Knowledgefield Libro PCA
- PCT PRIDE Paipa Project
- ResearchLine SNI STIMULUS
- School TECAA TECAT
- TECAX UNAM_Entity
- University

Relationship Types

- *(73) BELONG
- BELONG_CAMPO_CONO
- BELONG_GRUPO BSCSTUDY
- ESTA_GRUPO_INV ES_STIMULUS
- FINACIADO_POR HAS_PRIDE
- HAS_Project HAS_SNI
- JOBPOSITION LINEA_INV
- LINEA_INVESTIGA
- MASTERSTUDY PHDSTUDY
- PRODUCES WORKSFOR
- WORKS_UNI WRITE_ARTI

Property Keys

```
$
```

```
$ Create (ACMPA)-[:JOBPOSITION]->(PCTA) CREATE (ACBER)-[:JOBPOSITION]->(PCTC) CREATE (ACMPA)-[:HAS_SNI{fechaFin:2015}]-(:SNI) CREATE (ACMPA)-[:HAS_PRI...
```

Created 24 nodes, set 14 properties, created 34 relationships, completed after 63 ms.

```
$
```

```
$ CREATE (ACMPA)-[:BSCSTUDY]-(:F1)-[:BSCSTUDY]->(ING)-[:BSCSTUDY]->(IC) CREATE (ACMPA)-[:MASTERSTUDY]-(:IIMAS)-[:MASTERSTUDY]->(MC) CREATE (ACMPA)-[:PHDSTUDY]...
```

Created 14 nodes, created 18 relationships, completed after 22 ms.

```
$
```

Created 14 nodes, created 18 relationships, completed after 22 ms.

QUERIES

i

MATCH (ga)-[r2:ESTA_GRUPO_INV]->(ac)-[r1:LINEA_INVESTIGA]->(li)
WHERE li.name='Data Sciences' RETURN ac.name AS Researcher, ga.name AS AcademicGroup

\$ MATCH p=()-[:LINEA_INVESTIGA]->() RETURN p LIMIT 25

*(23) LINEA_INVESTIGA(4) BELONG_GRUPO(2) ESTA_GRUPO_INV(2) JOBPOSITION(1) HAS_SNI(1) HAS_PRIDE(2) HAS_Project(2) WRITE_ARTI(8) FINANCIADO_POR

ii

```
MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) WHERE
r1.tipo='conferencia' AND arti.anio=2018
RETURN en.nameAS entidad,arti.titulo AS nomArt, arti.anio AS year ORDER BY nomArt,year
DESC
```

\$ MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) WHERE r1.tipo='conferencia' AND arti.anio=2018 RETURN en.name AS entidad,arti.titulo AS ...

"entidad"	"nomArt"	"year"
"Facultad de Ingenieria"	null	2018

</>

//¿Qué académicos han publicado artículos para conferencia? si

```
MATCH (arti)<-[r1:WRITE_ARTI]-(ac)-[r2:WORKFOR]->(en)
where r1.tipo='conferencia'
RETURN ac.name AS academico,arti.titulo AS articulo,r1.tipo AS tipo,arti.anio AS anio
order by arti.anio DESC
```

\$ MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) where r1.tipo='conferencia' RETURN ac.nombre AS academico,arti.titulo AS articulo,r1.tipo ...

"academico"	"articulo"	"tipo"	"anio"
"Maria del Pilar"	null	"conferencia"	2018
"Maria del Pilar"	null	"conferencia"	2018

</>
Code

iii

```
MATCH (aca)-[r:WRITE_ARTI]->(arti) WHERE r.tipo='conferencia' return
arti.palabraClave1,arti.palabraClave2,arti.palabraClave3,arti.palabraClave4
```

\$ MATCH (aca)-[r:ESCRIBIO_ARTI]->(arti) WHERE r.tipo='conferencia' return arti.pa...

arti.palabraClave1	arti.palabraClave2	arti.palabraClave3	arti.palabraClave4
null	null	null	null

iv

```
MATCH (arti)<-[r1:WRITE_ARTI]-(ac)-[r2:WORKSFOR]->(en)
RETURN ac.name AS academico,arti.titulo AS articulo,r1.tipo AS tipo,arti.anio AS anio
```

\$ MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) RETURN ac.nombre ...

academico	articulo	tipo	anio
"María del Pilar"	null	"revista"	2015
"María del Pilar"	null	"conferencia"	2015
"María del Pilar"	null	"conferencia"	2018
"María del Pilar"	null	"revista"	2018

```
1 MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en)
2 where r1.tipo='conferencia'
3 RETURN ac.nombre AS academico,arti.titulo AS articulo,r1.tipo AS tipo,arti.anio AS anio
4 order by arti.anio DESC
5
```

\$ MATCH (arti)<-[r1:ESCRIBIO_ARTI]-(ac)-[r2:ADSCRIPCION]->(en) where r1.tipo='conferencia' RETURN ac.nombre AS academico,arti.titulo AS articulo,r1.tipo

"academico"	"articulo"	"tipo"	"anio"
"Maria del Pilar"	null	"conferencia"	2018
"Maria del Pilar"	null	"conferencia"	2015