Университет ИТМО

Факультет ФПИ и КТ

### Отчёт

### по лабораторной работе 1

**Системы Искуственного Интеллекта**

Студент:

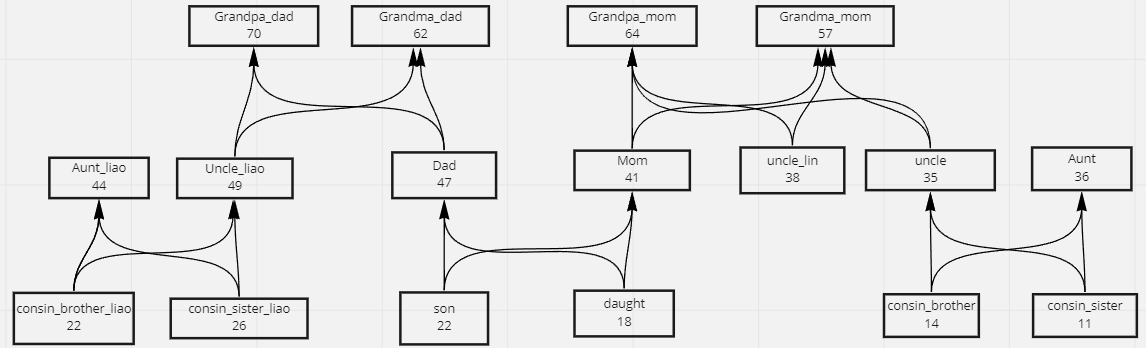
Ляо Ихун

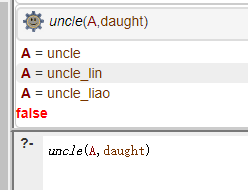
Преподаватель:  
Авдюшина Анна Евгеньевна

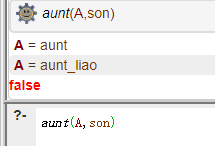
**Задача:**

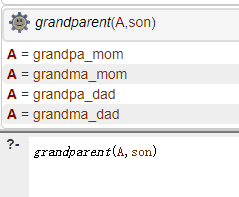
Составить базу знаний на языке Пролог, которая будет содержать генеалогическое дерево семьи с указанием родственных отношений.

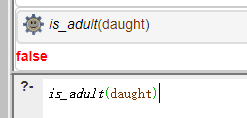
**Картика:**

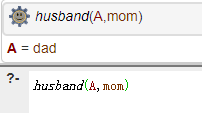


**Примеры:  
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**Код:**

%facts%

age(son,22).

age(daught,18).

age(dad,47).

age(mom,41).

age(grandpa\_mom,64).

age(grandma\_mom,57).

age(uncle\_liao,49).

age(uncle,35).

age(uncle\_lin,38).

age(grandpa\_dad,70).

age(grandma\_dad,62).

age(cosin\_sister\_liao,26).

age(cosin\_brother\_liao,22).

age(cosin\_brother,17).

age(cosin\_sister,13).

age(aunt\_liao,44).

age(aunt,36).

man(son).

man(dad).

man(uncle).

man(grandpa\_mom).

man(cosin\_brother).

man(grandpa\_dad).

man(uncle\_liao).

man(cosin\_brother\_liao).

man(uncle\_lin).

woman(cosin\_sister\_liao).

woman(aunt\_liao).

woman(grandma\_dad).

woman(daught).

woman(mom).

woman(aunt).

woman(cosin\_sister).

woman(grandma\_mom).

parent(uncle\_liao,cosin\_brother\_liao).

parent(uncle\_liao,cosin\_sister\_liao).

parent(aunt\_liao,cosin\_brother\_liao).

parent(aunt\_liao,cosin\_sister\_liao).

parent(mom,son).

parent(mom,daught).

parent(dad,son).

parent(dad,daught).

parent(grandpa\_mom,mom).

parent(grandma\_mom,mom).

parent(grandpa\_mom,uncle).

parent(grandma\_mom,uncle).

parent(grandma\_mom,uncle\_lin).

parent(grandpa\_mom,uncle\_lin).

parent(uncle,cosin\_sister).

parent(uncle,cosin\_brother).

parent(aunt,cosin\_brother).

parent(aunt,cosin\_sister).

parent(grandpa\_dad,dad).

parent(grandma\_dad,dad).

parent(grandma\_dad,uncle\_liao).

parent(grandpa\_dad,uncle\_liao).

couple(mom,dad).

couple(grandpa\_dad,grandma\_dad).

couple(grandpa\_mom, grandma\_mom).

couple(aunt,uncle).

couple(aunt\_liao,uncle\_liao).

couple(dad,mom).

couple(grandma\_dad,grandpa\_dad).

couple(grandma\_mom, grandpa\_mom).

couple(uncle,aunt).

couple(uncle\_liao,aunt\_liao).

%rules%

%couple(A,B):- couple(B,A),!.%

son(A,B):-parent(B,A), man(A).

daught(A,B):-parent(B,A),woman(A).

dad(A,B):-parent(A,B),man(A).

mom(A,B):-parent(A,B),woman(A).

brother(A,B):- dad(F1,A), dad(F2,B),F1=F2, mom(M1,A), mom(M2,A), M1=M2, man(A),\+A=B.

sister(A,B):- dad(F1,A), dad(F2,B),F1=F2, mom(M1,A), mom(M2,B), M1=M2, woman(A),\+A=B.

husband(A,B):-couple(A,B),man(A),woman(B).

wife(A,B):-couple(A,B),woman(A),man(B).

%two possibility for uncle

possibility\_u1(A,B):-man(A),mom(M,B),sister(M,A).

possibility\_u2(A,B):-man(A),dad(D,B),brother(D,A).

uncle(A,B):-possibility\_u1(A,B);possibility\_u2(A,B).

aunt(A,B):- uncle(C,B),wife(A,C).

grandparent(A,B):-parent(C,B), parent(A,C).

is\_adult(A):- age(A,Age),Age>18.