1. **Return Machines that perform InitialStep in Internal sites.**

Machine and isLocatedIn some InternalSite and doStep some InitialStep

1. **Return all the juniorworker of production with intern contract**

JuniorWorker and (WorksInModule value Production) and Intern

1. **Return Line supervisors who are seniors and are supervisor of a line which performs the functional test as step**

LineSupervisor and SeniorWorker and isSupervisorOf some (ProductionLine and hasSteps value FunctionalTest)

1. **Return the site that owns machines that performs Final Step**

Site and (Owns some (Machine and (doStep some FinalStep)))

1. **Return workers that have a contract for more than 36 months, and work for the factory from more than 10 years.**

Worker and (ContractLength some xsd:integer[>36]) and (WorksForYears some xsd:integer[>10])

1. **Return Devices that are composed of Base 0001 producted on date 12/09/2022 at 9:30**

Device and (hasCase value 0001) and (ProductionDate value "2022-09-12T09:30:00"^^xsd:dateTime)

**FinalProductSite:**

Site and (Owns some (Machine and (doStep some FinalStep)))

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

PREFIX owl: <http://www.w3.org/2002/07/owl#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX pro: <http://www.semanticweb.org/riccardosalvalaggio/ontologies/2022/7/ProductionOntology#>

1. **Return every manager of production that is manager of a junior worker and works in Berlin Site. (Pellet)**

SELECT ?w

WHERE {

?w rdf:type pro:ProductionWorker.

?w rdf:type pro:JuniorWorker.

?m pro:isManagerOf ?w.

?m pro:WorksInSite pro:BerlinSite

}

**2) Return every site that makes the last step of a line, with optionally the manager. (pellet)**

SELECT ?site ?manager

WHERE{

?site rdf:type pro:Site.

?machine rdf:type pro:Machine.

?machine pro:isLocatedIn ?site.

?machine pro:doStep ?step.

?step rdf:type pro:FinalStep.

OPTIONAL {?manager rdf:type pro:Manager.

?manager pro:LeadsSite ?site. }.

}

**3) Return the CEO of the company (Manager that is a manager but not is managed by any one) and the count of worker managed. (pellet)**

SELECT (?w as ?CEO) (count(?x) as ?Managed)

WHERE { ?w rdf:type pro:Manager.

{?w pro:isManagerOf ?y}

UNION

{?y pro:isManagerOf ?x}

FILTER NOT EXISTS{

?w pro:isManagedBy ?m

}

}

group by ?w

**4) Return the count of worker working on a module and the average of years worked in the company grouped by Module and ordered by Years.**

SELECT ?m (Count(?w) as ?quantity) (Avg(?y) as ?average)

WHERE { ?w rdf:type pro:Worker.

?w pro:WorksInModule ?m.

?w pro:worksforyears ?y

}

group by ?m

order by ?y

**5) Return every machine of Rome site with step, and production line, optionally the fixture(s) (pellet)**

SELECT ?m ?st ?o ?l ?f

WHERE {

?m rdf:type pro:Machine.

?m pro:isLocatedIn pro:RomeSite.

?m pro:doStep ?st.

?m pro:ProducesFor ?l.

?m pro:doOperations ?o.

OPTIONAL{

?m pro:hasFixtures ?f

}

}

**6) Return every OffShoreSupplier that produces Base and Mechanics that entirely compose a device. (pellet)**

SELECT ?su ?b ?m

WHERE {

?su rdf:type pro:OffShoreSupplier.

?su pro:ProducesCase ?b.

?b pro:MakeDevice ?d.

?d pro:hasMechanics ?m.

?su pro:ProducesMechanics ?m.

}

**7) Return every device produced on 08/2022, with Base,Mechanics from a Supplier. (pellet)**

SELECT ?su ?d ?b ?m

WHERE {

?d rdf:type pro:Device.

?d pro:hasCase ?b.

?d pro:hasMechanics ?m.

?m rdf:type pro:Mechanics.

?b rdf:type pro:Case.

?su rdf:type pro:Supplier.

?su pro:ProducesDevice ?d.

?su pro:ProducesMechanics ?m.

?su pro:ProducesCase ?b.

?d pro:ProductionDate ?pr

FILTER(?pr < "2022-08-31T23:59:00"^^xsd:dateTime && ?pr > "2022-08-01T00:00:00"^^xsd:dateTime)

}