1. HOW MANY GAMES PER PLATFORM ?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#how many games per platform


select distinct ?platform (COUNT(?game) as ?games) where{
        ?game :releasedOn ?platform.
   }
GROUP BY ?platform
HAVING (?games > 10)
ORDER BY DESC (?games)
```

2. DO PEOPLE PLAY THE SAME GAME THE MOST TIME ON NINTENDO SWITCH OR ON PC?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#check if people play the same game the most time on nintendo switch or pc (in seconds)?


select distinct (COUNT(?game) as ?totalGames) (xsd:integer(AVG(?switch)) as ?
averageTimeNintendoSwitch) (xsd:integer(AVG(?avgPC)) as ?averageTimePC) where {
      select distinct ?game (AVG(?switchTime) as ?switch) ?avgPC where{
            ?game :hasStats ?stats.
            ?stats :mainTime ?switchTime;
                 :onPlatform :nintendo-switch.
            FILTER(?switchTime > 0)
            {
                  select distinct ?game (AVG(?pcTime) as ?avgPC) where{
                        ?game :hasStats ?stats.
                        ?stats :mainTime ?pcTime;
                                      :onPlatform :pc.
                        ?game :releasedOn :pc;
                             :releasedOn :nintendo-switch;
                             :releasedOn ?platform.
                        FILTER(?pcTime > 0)
            }
            GROUP BY ?game
            }}
      GROUP BY ?avgPC ?game
}
```

3. ARE THE NUMBER OF GAMES RELEASED BEFORE 2013 ON PC MORE THAN THE ONES RELEASED AFTER 2013?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#Are the number of games released before 2013 on pc more than the ones released after 2013?


PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
ask where{
      {
   select distinct (COUNT(?game) as ?after2013) where {
         ?game :multiplayerFocus true;
               :releasedOn ?platform;
```

```
                :hasStats ?stats.
        ?stats :releaseDate ?date.
        ?platform :name "PC".
        FILTER("2013"^^xsd:dateTime<?date)
        }}
        {
    select distinct (COUNT(?game) as ?before2013) where {
            ?game :multiplayerFocus true;
                        :releasedOn ?platform;
                        :hasStats ?stats.
        ?stats :releaseDate ?date.
        ?platform :name "PC".
        FILTER("2013"^^xsd:dateTime>=?date)
            }}
FILTER(?before2013>?after2013)
}
```

4. HOW MANY ADVENTURE GAMES ARE RELEASED ON PC?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#released adventure games per year on pc


select distinct ?year (COUNT(?game) as ?games)  where{
        ?game  :hasStats ?stats;
                    :hasGenre ?genre.
        ?stats :releaseDate ?date;
                    :onPlatform :pc.
        ?genre :name ?name.
 FILTER (REGEX(?name,".*adv.*"))
}
GROUP BY (year(?date) as ?year)
ORDER BY DESC(?year)
```

5. HOW MANY COPIES SOLD THE GAMES FOR WHICH THE USERS INSERTED THE MOST COMPLETION TIME DATA? (LIKELY THE MOST APPRECIATED)

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#units sold worldwide on all platforms for the most polled games (likely appreciated games by fans)
select distinct ?game (SUM(?people) as ?howManyPolled) (SUM(?units) as ?unitsSold) where{
        ?game :hasStats ?stats.
        ?stats :polledTime ?people.

         ?game :sold ?sales.
         ?sales :unitsSold ?units;
                    :locatedIn ?region;
                    :onPlatform ?platform.
        FILTER(?units > 0)
}
GROUP BY ?game
ORDER BY DESC (?howManyPolled)
LIMIT 10
```

6. HOW MANY EXCLUSIVE GAMES EACH POPULAR PLATFORM HAS?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#exclusive games on popular platforms
select distinct ?name (COUNT(?game) as ?games)  where {
        ?game :releasedOn ?platform.
        ?platform :officialName ?name;
                  :popular true.
          {
        select distinct ?game (COUNT(?platform) as ?platforms) where{
                ?game :releasedOn ?platform;
                      :officialName ?name.
        }
        GROUP BY ?game ?name
        HAVING (?platforms = 1)
        }
}
GROUP BY ?name
```

7. WHAT ARE THE MOST PRAISED GAMES BY THE CRITIC?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#games with a very high critic score grouped by year


select distinct ?year (GROUP_CONCAT(DISTINCT ?name; separator = ", ") as ?games) where{
    ?game :hasStats ?stats;
          :officialName ?name.
    ?stats :releaseDate ?date;
           :criticScore ?score.
 FILTER(?score >= 9.5)
}
GROUP BY (year(?date) as ?year)
ORDER BY DESC (?year)
```

8. WHAT MULTIPLAYER FOCUSED GAMES OF ELECTRONIC ARTS SOLD THE MOST?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#all multiplayer focused games of Electronic Arts
select distinct ?game (SUM(?soldUnits) as ?totalUnits) where{
    ?game a :Game;
          :officialName ?name;
              :publishedBy ?company;
                :multiplayerFocus true;
                   :sold ?sales.
OPTIONAL {?sales :unitsSold ?soldUnits.} #if for a given platform we don't have sales data
FILTER (REGEX(str(?company),"ea-") || REGEX(str(?company),"electronic-arts"))
}
GROUP BY ?game ?company
HAVING (?totalUnits > 0.4)
ORDER BY DESC (?totalUnits)
```

9. HOW MANY COMPANIES PER REGION?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#how many companies per region


select distinct ?region (COUNT(?company) as ?howManyCompanies)  where{
	?company :basedIn ?country.
	?country :locatedIn ?region.
}
GROUP BY ?region
ORDER BY ?howManyCompanies
```

10. HOW LONG DOES IT TAKE TO BEAT THE MOST PLAYED POKÈMON GAMES?

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#how long to beat every most played pokémon game


select distinct ?name (xsd:integer(AVG(?mainStory/3600)) as ?avgMainStory_hours)
(xsd:integer(AVG(?completionistTime/3600)) as ?avgCompletionistTime_hours)  where{
   ?game :hasStats ?stats;
        :officialName ?name.
   ?stats :mainTime ?mainStory;
          :completionistTime ?completionistTime;
          :polledTime ?polledTime.
   FILTER(REGEX(?name, "(?i)pokémon*"))
   FILTER(?polledTime > 100) #at least 100 people inserted data - likely the most played titles
}
GROUP BY ?name
ORDER BY DESC (?avgMainStory_hours)
```

11. HOW MANY BITS IS THE CPU THAT RUNS THE GIVEN GAME? (CONSTRUCT QUERY)

```
PREFIX hltb: <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
#How many bits is the cpu that runs the given game?
#example of construct query.


CONSTRUCT {
   ?game rdf:type hltb:Game .
   ?game hltb:officialName ?name .
   ?platform hltb:bits ?bit .


}WHERE{
   ?game hltb:officialName ?name ;
     hltb:releasedOn ?platform .
   ?platform hltb:bits ?bit .
}
```

12. (BONUS QUERY) DATA ABOUT FIFA AND PES.

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#time to beat the career, the critic score and sold units for "fifa" and "pro evolution soccer"


select distinct ?name  (xsd:integer(AVG(?carriera/3600)) as ?carrerTime_hours) (AVG(?score) as ?
criticScore) (SUM(DISTINCT ?sales) as ?soldUnits) where{
   ?game :officialName ?name.
   OPTIONAL{
      ?game :hasStats/:mainTime ?carriera.
   }
   OPTIONAL{?game :sold/:unitsSold ?sales.}
   OPTIONAL{?game :hasStats/:criticScore ?score.}
   FILTER(REGEX(?name,"(?i)fifa \\d") || REGEX(?name, "(?i)pro evolution soccer") || REGEX(?
name,"\\d (?i)fifa"))
}
GROUP BY ?name
```

13.SHOW THE GAME NAMED "007 LEGENDS"

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX hltb: <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#Show the game named "007 Legends"

SELECT ?game WHERE
{
         ?game hltb:officialName "007 Legends"^^xsd:string .
}
```

14. LIST THE GAMES WHOSE PLATFORM HAS 32-BITS OR 8-BITS CPU

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX hltb: <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
#List the games whose platform has 32-bits or 8-bits CPU

SELECT ?name ?platform ?bit WHERE {
         ?game hltb:officialName ?name ;
     hltb:releasedOn ?platform .
   ?platform hltb:bits ?bit .
   FILTER(?bit = "32"^^xsd:int || ?bit = "8"^^xsd:int) .

} limit 100
```

15. ARE THE AVERAGE NUMBER OF GAMES SOLD IN EUROPE MORE THAN NORTH AMERICA?

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX hltb: <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
#Are the average number of games sold in Europe more than North America?

ASK WHERE{
   {
      SELECT ( AVG(?unitsSold) AS ?totsale_eu) WHERE{
          ?game  hltb:officialName ?name ;
             hltb:locatedIn hltb:eu ;
                          hltb:sold ?placeplatform .
                ?placeplatform hltb:unitsSold ?unitsSold .
          }
     }
     {
        SELECT ( AVG(?unitsSold) AS ?totsale_na) WHERE{
          ?game  hltb:officialName ?name ;
             hltb:locatedIn hltb:na ;
                          hltb:sold ?placeplatform .
                ?placeplatform hltb:unitsSold ?unitsSold .
          }
     }
FILTER (?totsale_eu > ?totsale_na)
}
```

16. LIST OF GAMES AND THEIR PLATFORMS SOLD IN JAPAN AND NORTH AMERICA

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX hltb: <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
#list of games and their platforms sold in Japan and North America

SELECT ?name ?placeplatform ?unitsSold WHERE{
          {
   ?game hltb:officialName ?name ;
     hltb:sold ?placeplatform .
   ?placeplatform hltb:unitsSold ?unitsSold ;
          hltb:locatedIn  hltb:jp .
          }
UNION
          {
   ?game hltb:officialName ?name ;
     hltb:sold ?placeplatform .
   ?placeplatform hltb:unitsSold ?unitsSold ;
          hltb:locatedIn  hltb:na .
          }
}
ORDER BY ?unitsSold
```

ANALYTICS QUERIES

1. NUMBER OF GAMES IN THE DATABASES, FOR HOW MANY WE HAVE STATS DATA, FOR HOW MANY WE HAVE SALES DATA AND FOR HOW MANY BOTH.

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
#number of games in the databases, for how many we have Stats data, for how many we have
Sales data and for how many both.
```

```
select distinct (COUNT(DISTINCT?game2) as ?totalGames)(COUNT(DISTINCT?game1)  as ?
gamesWithStatsData) (COUNT(DISTINCT?game) as ?gamesWithSalesData)  (COUNT(DISTINCT?
game3) as ?gamesWithBothData)where {
   {
   ?game :sold ?sales.
      }
      UNION
   {
            ?game1 :hasStats ?stats.
   }
   UNION
   {
      ?game2 :id ?id.
   }
   UNION
   {
      ?game3 :sold ?sales;
           :hasStats ?stats.
   }
}
```

2. TRIPLES, EDGES, NODES AND ATTRIBUTES IN THE GRAPH.

```
PREFIX : <http://www.dei.unipd.it/database2/HLTB-db2unipd#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
#how many triples,edges,nodes and attributes in the graph


SELECT DISTINCT (COUNT (?l) as ?totalTriples)  (COUNT (?v) as ?totalNodes)  (COUNT (?s) as ?
totalAttributes) (COUNT (?b) as ?totalEdges)WHERE
{
   {
       ?l ?n ?f
   }
   UNION
   {
       ?c a owl:DatatypeProperty.
        ?s ?c ?o.
   }
   UNION
      {
   ?d a owl:ObjectProperty.
   ?b ?d ?e.
      }
   UNION
      {
   ?z a owl:Class.
   ?v ?x ?z.
      }
}
```