**Competency Questions**

**+**

**SPARQL Queries**

# Functional Requirements (Competency Question Groups)

# G1: Admission

**ID Question**

G1-A: What are the attributes in the admission form?

G1-B: Which institutes offer the intended program? G1-C: What is the duration of Inter program?

G1-D: Which/How many programs are available for Inter students? G1-E: Which degree is prerequisite for intermediate?

G1-F: How much marks in previous degree, are necessary to get admission? G1-G: What is admissions’ opening date in each college?

G1-H: What is admissions’ closing date in each college?

**G1-A: What are the attributes in the admission form?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Admission\_Form\_Entities (STR(?value) as ?Values)

WHERE {

ksr:FSc\_Admission\_Form ?Admission\_Form\_Entities ?value.

FILTER(isLiteral(?value)) }

**G1-B: Which institutes offer the intended program?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?ICSProgram ?College

WHERE {

?ICSProgram a ksr:ICS;

ksr:Offerd\_by ?College.

}

**G1-C: What is the duration of Inter program?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?InterProgram (STR(?Duration) as ?duration)

WHERE { ?InterProgram a ksr:Intermediate\_Degree\_Program;

ksr:DurationI ?Duration.

}

**G1-D: Which/How many programs are available for Inter students?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program (STR(?totalCount) as ?Total)WHERE {

{

SELECT (COUNT(?Program) AS ?totalCount) WHERE {

?Program rdfs:subClassOf ksr:Intermediate\_Degree\_Program .

}

}

?Program rdfs:subClassOf ksr:Intermediate\_Degree\_Program .

}

**G1-E: Which degree is prerequisite for intermediate?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program (STR(?Prereq) as ?Prerequisite)

WHERE { ?Program a ksr:Intermediate\_Degree\_Program;

ksr:Prerequisite ?Prereq.}

**G1-F: How much marks in previous degree, are necessary to get admission?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program (STR(?Marks) as ?MarksInPercent)

WHERE { ?Program a ksr:Intermediate\_Degree\_Program;

ksr:Required\_Marks ?Marks.}

**G1-G: What is admissions’ opening date in each college?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?College (STR(?date) as ?AdmissionCommencementDate)

{

?College a ksr:College ;

ksr:Admission\_Commencement\_Date ?date.

}

ORDER BY ?date

**G1-H: What is admissions’ closing date in each college?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?College (STR(?date) as ?AdmissionClosingDate)

{

?College a ksr:College ;

ksr:Admission\_Closing\_Date ?date.

}

ORDER BY ?date

# G2: Facilities & Non-Academic Aspects ID Question

G2-A: Which facilities are given to students in college? G2-B: Which scholarships are available?

G2-C: Which sources will be used to acquire scholarships? G2-D: On what basis scholarships are awarded to students? G2-E: Which co-curricular functions take place at colleges? G2-F: What is procedure to migrate from a college to other? G2-G: What is the summer and winter vacations’ duration?

**G2-A: Which facilities are given to students in college?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?FacilitiesinCollege

WHERE {

?FacilitiesinCollege a ksr:Campus\_Facilities.

}

**G2-B: Which scholarships are available?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Scholarships

WHERE {

?Scholarships a ksr:Scholarships.

}

**G2-C: Which sources will be used to acquire scholarships?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Scholarship (STR(?Source) as ?AccuiringSource)

WHERE { ?Scholarship a ksr:Scholarships;

ksr:Accuiring\_Source ?Source.

}

**G2-D: On what basis scholarships are awarded to students?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Scholarship (STR(?Eligibility) as ?EligibilityCriteria)

WHERE { ?Scholarship a ksr:Scholarships;

ksr:Eligibility\_S ?Eligibility.

}

**G2-E: Which co-curricular functions take place at colleges?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Events

WHERE {

?Events a ksr:Events\_.

}

**G2-F: What is procedure to migrate from a college to other?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT (STR(?Migration) as ?MigrationProcess)

WHERE { ?Migration\_ a ksr:Campus\_Facilities;

ksr:Migration\_Data ?Migration.

}

Order by Asc(?Migration)

**G2-G: What is the summer and winter vacations’ duration?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Holidays ?Duration

WHERE {

?Holidays a ksr:Holidays;

ksr:Duration\_H ?Duration.

}

# G3: Boards

**ID Question**

G3-A: Which boards in Punjab are offering the Intermediate Programs? G3-B: Which attributes are there in the board registration form?

G3-C: How many students are registered in each board?

**G3-A: Which boards in Punjab are offering the Intermediate Programs?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?BISEBoards

WHERE {

?BISEBoards a ksr:BISE.

}

**G3-B: Which attributes are there in the board registration form?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Registeration\_Entities (STR(?value) as ?Values)

WHERE {

ksr:Ali\_Registration\_Form ?Registeration\_Entities ?value.

FILTER(isLiteral(?value)) }

order by asc(?Registeration\_Entities)

**G3-C: How many students are registered in each board?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Board (count(?student) as ?numberOfstudents)

WHERE {

?student a ksr:Student;

ksr:Gets\_registered\_in ?Board.

}

group by ?Board

order by desc(?numberOfstudents)

# G4: Colleges

**ID Question**

G4-A: When are Intermediate programs’ classes starting? G4-B: When Intermediate programs’ classes End?

G4-C: What is college class timing?

G4-D: What is colleges’ procedure to prepare the students for board exams?

**G4-A: When are Intermediate programs’ classes starting?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?College (STR(?Classes\_commencementDate) as ?ClassescommencementDate)

WHERE {

?College a ksr:College;

ksr:Class\_Commencement\_Date\_2022 ?Classes\_commencementDate.

}

**G4-B: When Intermediate programs’ classes End?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?College (STR(?Classes\_EndingDate) as ?ClassesEndingDate)

WHERE {

?College a ksr:College;

ksr:Class\_End\_Date\_2024 ?Classes\_EndingDate.

}

**G4-C: What is college class timing?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?College (STR(?College\_Time) as ?CollegeTime)

WHERE {

?College a ksr:College;

ksr:College\_Time ?College\_Time.

}

**G4-D: What is colleges’ procedure to prepare the students for board exams?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT (STR(?boardExamPrep) as ?boardExamPreparations)

WHERE {

ksr:Comprehensive\_College rdf:type ksr:College ;

ksr:Board\_Exam\_Preparations ?boardExamPrep .

}

# G5: Curriculum (Academics) ID Question

G5-A: What are the contents of the Syllabus for 1st and 2nd years?

G5-B: Who is responsible for approving the subjects for intermediate?

G5-C: Who is responsible for preparing and approving the syllabus for intermediate? G5-D: Which subjects are there in each inter-program?

G5-E: Which subjects are elective?

G5-F: Which subjects are compulsory?

G5-G: What are language choices for students?

**G5-A: What are the contents of the Syllabus for 1st and 2nd years?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program (STR(?URL) as ?SyllabusURL)

WHERE {

?Program a ksr:Syllabus;

ksr:Syllabus\_URL ?URL.

}

**G5-B: Who is responsible for approving the subjects for intermediate?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?subject ?Approved\_by

WHERE {

?Approved\_by a ksr:BISE;

ksr:Approves ?subject.

}

**G5-C: Who is responsible for preparing and approving the syllabus for intermediate?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Syllabus ?Prepared\_by\_Institute

WHERE {

?Prepared\_by\_Institute a ksr:PCTB;

ksr:Makes ?Syllabus.

}

**G5-D: Which subjects are there in each inter-program?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program ?Subjects

WHERE {

?Program a ksr:ICS;

ksr:Subject\_NameI ?Subjects.

}

**G5-E: Which subjects are elective?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program ?SubjectType (STR(?Elective) as ?ElectiveSubjects)

WHERE {

?SubjectType a ksr:Elective\_Subjects;

ksr:Are\_Part\_of ?Program;

ksr:Subjects ?Elective.

}

ORDER BY ASC(?Program)

**G5-F: Which subjects are compulsory?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program ?SubjectType (STR(?Compulsory) as ?CompulsorySubjects)

WHERE {

?SubjectType a ksr:Compulsory\_Subjects;

ksr:Are\_Part\_of ?Program;

ksr:Subjects ?Compulsory.

}

ORDER BY ASC(?Program)

**G5-G: What are language choices for students?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Program ?LanguageChoice

WHERE { ?Program a ksr:Intermediate\_Degree\_Program;

ksr:has ?LanguageChoice.

}

# G6: Examination ID Question

G6-A: Who is responsible to conduct the examinations in Punjab? G6-B: Who is responsible for deciding the subjects for intermediate? G6-C: Who issues roll no slip?

G6-D: What attributes does roll number slip include? G6-E: Which subjects’ practical is taken?

G6-F: What is exams starting date? G6-G: What is exams ending date?

G6-H: Which subjects’ exams are on same date?

**G6-A: Who is responsible to conduct the examinations in Punjab?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Exam ?Institute

WHERE {

?Institute a ksr:Institution;

ksr:Conducts ?Exam.

}

**G6-B: Who is responsible for deciding the subjects for intermediate?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Exam ?Institute

WHERE {

?Institute a ksr:Institution;

ksr:Approves ?Exam.

}

**G6-C: Who issues roll no slip?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Institute ?Exam

WHERE {

?Institute a ksr:Institution;

ksr:Issues ?Exam.

}

**G6-D: What attributes does roll number slip include?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?RollNoSlip\_Entities (STR(?value) as ?Values)

WHERE {

ksr:BISE\_Annual\_Exam\_2023\_RollNo\_Slip\_11th\_Class ?RollNoSlip\_Entities ?value.

FILTER(isLiteral(?value)) }

**G6-E: Which subjects’ practical is taken?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Exam (STR(?Subjects) as ?Subject)

WHERE {

?Exam a ksr:Practical\_Exams;

ksr:Practical\_Subject ?Subjects.

}

**G6-F: What is exams starting date**?

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Class (STR(?date) as ?ExamCommencementDate)

{

?Class a ksr:Annual\_Exams ;

ksr:Exam\_Commencement\_Date ?date.

}

**G6-G: What is exams ending date?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Class (STR(?date) as ?ExamEndDate)

{

?Class a ksr:Annual\_Exams ;

ksr:Exam\_End\_Date ?date.

}

# G7: Result

**ID Question**

G7-A: Who/when announces the result?

G7-B: What attributes does the result sheet include?

G7-C: What are the passing criteria for students of intermediate? G7-D: What are the fail criteria for students of intermediate?

G7-A: Who/when announces the result?

**G7-A: Who/when announces the result?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?Result ?institute

WHERE {

?institute a ksr:Institution;

ksr:Announces?Result.

}

**G7-B: What attributes does the result sheet include?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT

?results

(STR(?resultvalue11) as ?1st\_Year\_Result)

(STR(?resultvalue12) as ?2nd\_Year\_Result)

(IF(isNumeric(?resultvalue11) && isNumeric(?resultvalue12), STR(?resultvalue11 + ?resultvalue12), "") as ?Total\_Result)

WHERE {

ksr:Ali\_ResultCard\_11th\_Class ?results ?resultvalue11 .

ksr:Ali\_ResultCard\_12th\_Class ?results ?resultvalue12 .

FILTER(isLiteral(?resultvalue11) && isLiteral(?resultvalue12))

}

ORDER BY DESC(?resultvalue11)

**G7-C: What are the passing criteria for students of intermediate?**

For Percentage:

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT (STR(?name) as ?StudentName) (STR(?RollNo) as ?StudentRollNo) (STR(?percentage) as ?Percentage)

WHERE {

ksr:Ali\_ResultCard\_12th\_Class ksr:Roll\_No\_Rc ?RollNo .

ksr:Ali\_ResultCard\_12th\_Class ksr:Candidate\_Name\_Rc ?name .

ksr:Ali\_ResultCard\_12th\_Class ksr:Total\_Obtained\_Marks\_Rc ?obtained .

ksr:Ali\_ResultCard\_12th\_Class ksr:Total\_Marks\_Rc ?total .

BIND((?obtained / ?total) \* 100 AS ?percentage)

}

**For checking Pass/Fail:**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT (STR(?name) AS ?StudentName) (STR(?RollNo) AS ?StudentRollNo) (STR(?percentage) AS ?Percentage) (IF(?percentage > 40, "Pass", "Fail") AS ?Result)

WHERE {

ksr:Ali\_ResultCard\_12th\_Class ksr:Roll\_No\_Rc ?RollNo ;

ksr:Candidate\_Name\_Rc ?name ;

ksr:Total\_Obtained\_Marks\_Rc ?obtained ;

ksr:Total\_Marks\_Rc ?total .

BIND((?obtained / ?total) \* 100 AS ?percentage)

}

# G8: Fee

**ID Question**

G8-A: What is 2 year fee in college?

G8-B: Which college has highest/lowest fee?

G8-C: How much marks required to get concession?

G8-D: How much concession is given?

**G8-A: What is 2 year fee in college?**

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT ?CollegeName (STR(?totalFee) as ?TotalFee)

WHERE {

?CollegeName a ksr:Fee\_Structure;

ksr:Total\_Fee ?totalFee;

}

**G8-B: Which college has highest/lowest fee?**

|  |  |
| --- | --- |
| **Highest**  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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>  SELECT (STR(?collegeName) AS ?CollegeName) (STR(?highestFee) AS ?HighestFee)  WHERE {  {  SELECT ?collegeName (MAX(?fee) AS ?highestFee)  WHERE {  ?college a ksr:Fee\_Structure ;  ksr:College\_Name\_Fs ?collegeName ;  ksr:Total\_Fee ?fee .  FILTER(datatype(?fee) = xsd:int)  }  GROUP BY ?collegeName  ORDER BY DESC(?highestFee)  LIMIT 1  }  } | **Lowest**  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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>  SELECT (STR(?collegeName) AS ?CollegeName) (STR(?lowestFee) AS ?LowestFee)  WHERE {  {  SELECT ?collegeName (MIN(?fee) AS ?lowestFee)  WHERE {  ?college a ksr:Fee\_Structure ;  ksr:College\_Name\_Fs ?collegeName ;  ksr:Total\_Fee ?fee .  FILTER(datatype(?fee) = xsd:int)  }  GROUP BY ?collegeName  ORDER BY Asc(?lowestFee)  LIMIT 2  }  } |

**G8-C: How much marks required to get concession?**

|  |  |
| --- | --- |
| 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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>  SELECT ?CollegeName (STR(?totalFee) as ?TotalFee) (STR(?feeConcession) as ?FeeConcession)  WHERE {  ?CollegeName a ksr:Fee\_Structure;  ksr:Total\_Fee ?totalFee;  ksr:Fee\_Concession ?feeConcession.  } | 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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>  SELECT (STR(?collegeName) as ?CollegeName) (STR(?totalFee) as ?TotalFee) (STR(?feeConcession) as ?FeeConcession)  WHERE {  ksr:Punjab\_College\_Fee a ksr:Fee\_Structure;  ksr:College\_Name\_Fs ?collegeName;  ksr:Total\_Fee ?totalFee;  ksr:Fee\_Concession ?feeConcession.  } |

**G8-D: How much concession is given?**

* Student fill admission form for college admission
* The students’ obtained marks = 928 and total marks= 1100 are taken from the Class “College\_Admission\_Form” , “FSc\_Admission\_Form” individual
* Percentage is calculated
* Total fee is taken from Fee\_Structure class, “Punjab\_College\_Fee” Individual
* Cocession is granted if percentage match concession packeges
* Here we have done it for Punjab College, if student write 84% marks in admission form

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 ksr: <http://www.semanticweb.org/sehrish/ontologies/2023/1/interedu#>

SELECT (STR(?studentName) as ?StudentName) (STR(?totalFeeValue) AS ?TotalFee) (STR(?marksPercentage) as ?MarksPercentage) (STR(?formattedFeeConcession) AS ?FeeConcession) (STR(?fee) AS ?YourConcessionedFee)

WHERE {

ksr:FSc\_Admission\_Form a ksr:College\_Admission\_Form ;

ksr:Student\_Name\_A ?studentName ;

ksr:Student\_Matric\_Total\_Marks\_A ?totalMarks ;

ksr:Student\_Matric\_Obtained\_Marks\_A ?obtainedMarks .

BIND((?obtainedMarks / ?totalMarks) \* 100 AS ?marksPercentage)

{

SELECT ?totalFee WHERE {

?totalFeeInstance a ksr:Fee\_Structure ;

ksr:Total\_Fee ?totalFee .

FILTER (?totalFeeInstance = ksr:Punjab\_College\_Fee)

}

}

BIND(IF(?marksPercentage >= 80 && ?marksPercentage <= 89, "10,000", "0") AS ?formattedFeeConcession)

BIND(STR(IF(?marksPercentage >= 80 && ?marksPercentage <= 89, ?totalFee - 10000, ?totalFee)) AS ?fee)

BIND(STR(?totalFee) AS ?totalFeeValue)

}

aaadhueuybbbryfhdinnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn