

ISA relationships

Inheritance is not a new concept to computer science majors. The ISA relationship is inheritance as it pertains to data.

Let's look at the following Entities:

Student

SSN

Name

Graduate student

GS6 filed

Research field

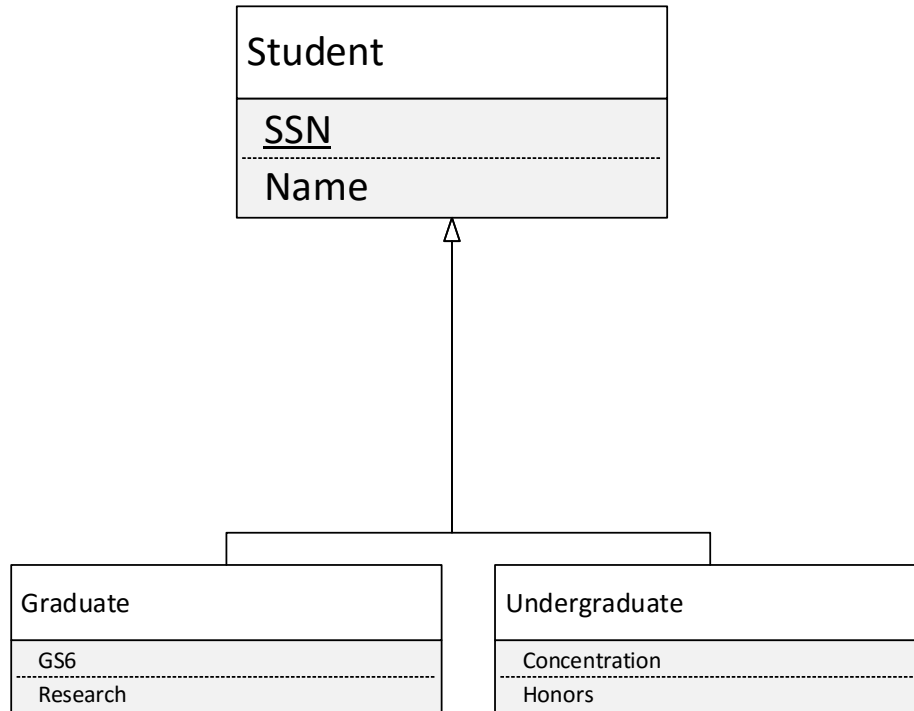
Undergraduate student

Concentration

Honors

This is a typical ISA relationship, the attributes for student are general, ie every student has these attributes. Above and beyond that – there are attributes specific to the type of student they are – i.e. if they are a graduate student, we need to know if they have filed a GS6 and what their research field is; if they are an undergraduate student we need to know what their concentration is and if they are an honors student.

This is drawn below:



Specialization is the downward path on this diagram, Students are specialized into either Graduate or Undergraduate. Generalization is the upward path on this diagram. Undergraduate and Graduate are generalized into Students.

Overlap constraints – can a student be both a graduate student and an undergraduate student? If the answer is yes, call that overlapping specialization, if not it is called disjoint specialization. For overlapping, two separate arrows are used. For disjoint, a single arrow is used as above.