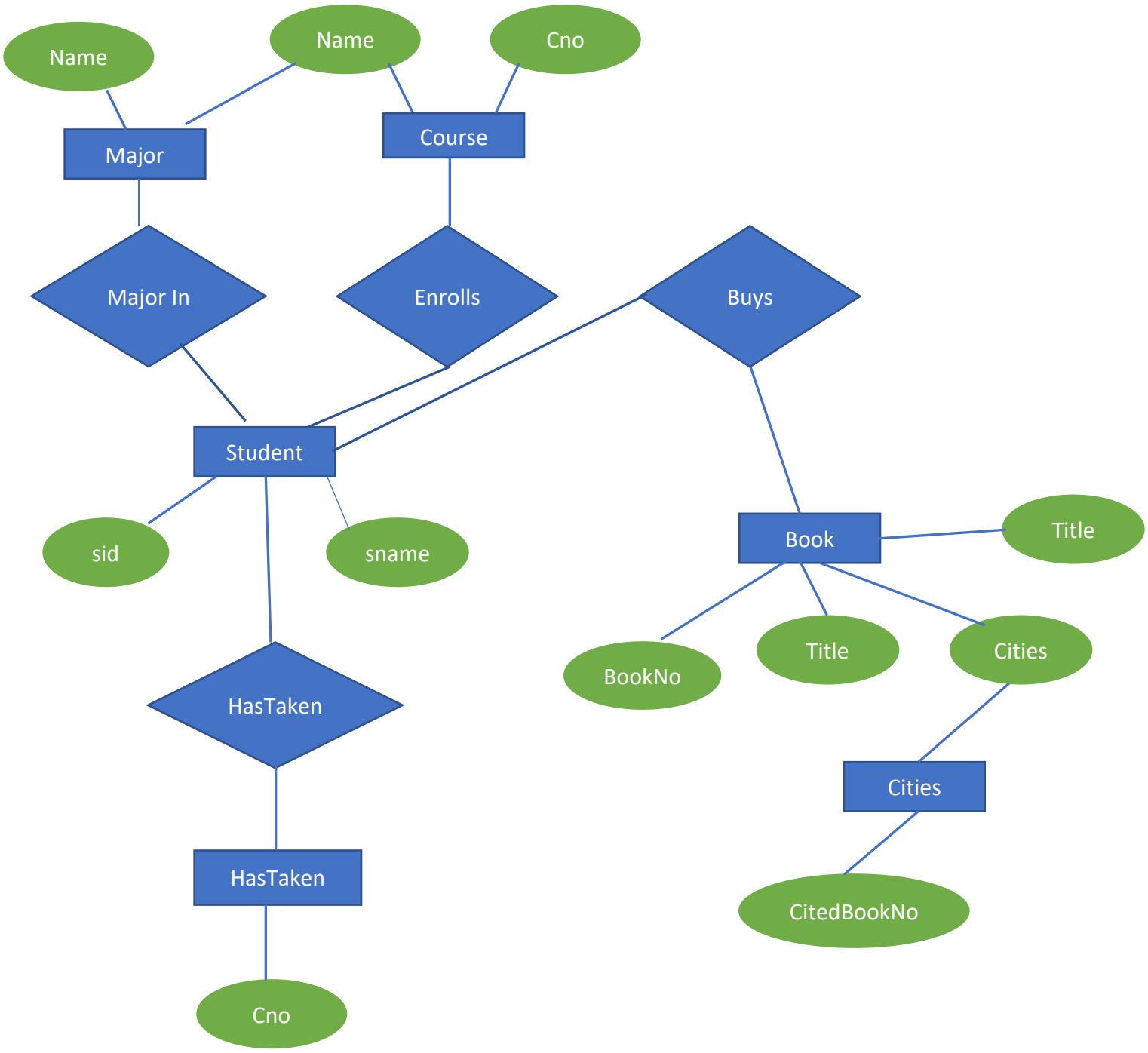
Assingmnet 7

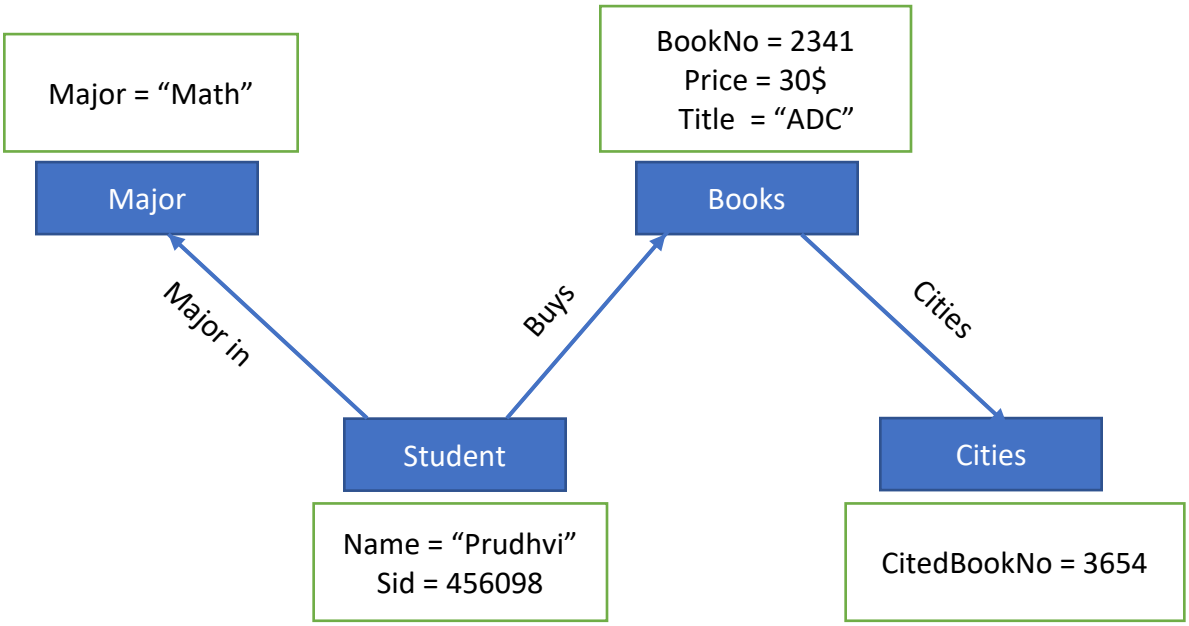
Prudhvi Vajja.

Question 6.

a) Specify an Entity-Relationship Diagram that models this database schema.
b) Student, Course, Buys, Major, and Cites,HasTaken



b) Specify the node and relationship types of a Property Graph for this database schema. In addition, specify the properties, if any, associated with each such type.



Question 7.

(a) Find the types of the relationships associated with Student nodes.

Ans:

```
match(:student) – [rel] -> ()

return distinct type(r)
```

(b) Find each student (node) whose name is 'John' and who bought a book whose price is at least $50.

Ans:

```
match (s: student {name : 'john'}) –[:buys] -> (:book{price >=50})

return s
```

(c) Find each student (node) who bought a book that cites a book whose price is at least $50.

Ans:

match(s:student) – [:buys] -> (b1 : book),

(b1:book) – [:cites] -> (b2:book{price >= 50})

return s

(d) Find each book (node) that is cited directly or indirectly (i.e., recursively) by a book that cost more that $50.

Ans:

Match (b2:book{price > 50})-[:cities]-> (b:book) - [:cities] -> (b1:book {price > 50})

Return b

(e) Find for each book node, that node along with the number of students who major in both CS and in Math and who bought that book.

Ans:

Match (b: book) <- [:buys] – ((b1:Buys) –[: major_in] -> (m1:major {major : 'cs'}),

(b1: Buys) - [: major_in] -> (m2 : major {major : 'math'}))

return b, count (b1)