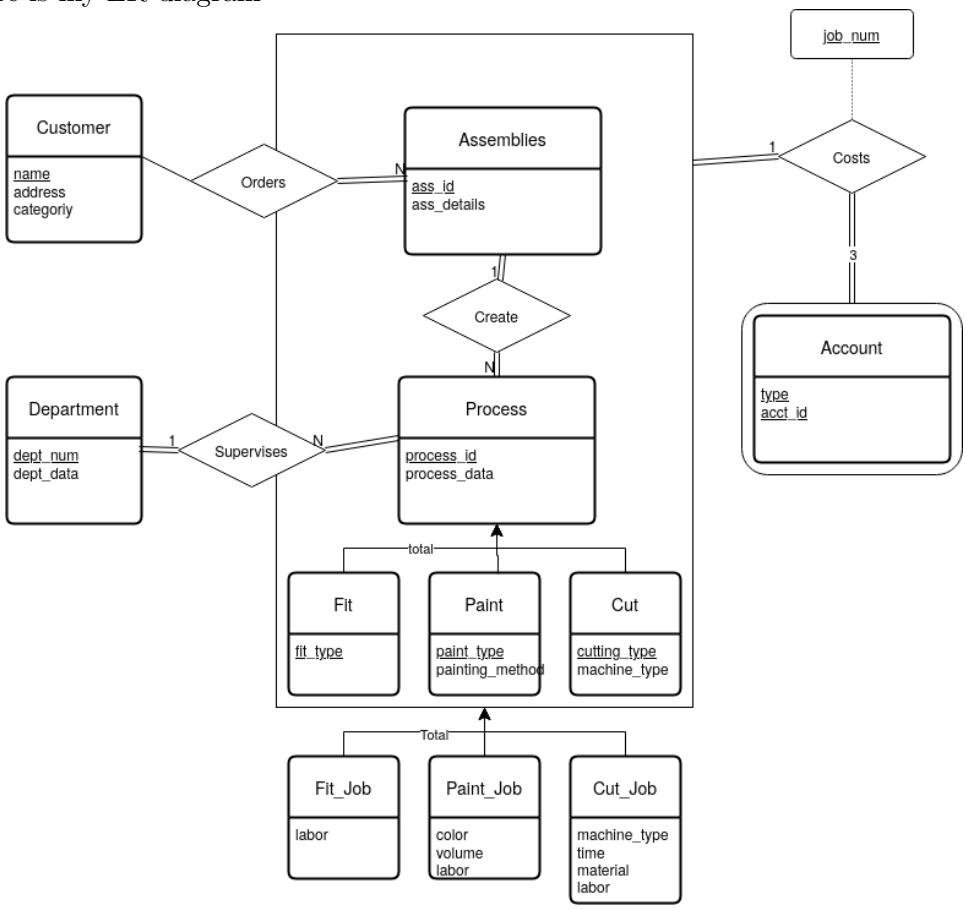
NAME: Nicholas Jacob
EMAIL: nicholas.c.jacob-1@ou.edu
STUDENT ID: # 113578513
Final Project
COURSE: CS/DSA 4513 DATABASE MANAGEMENT
SECTION: ONLINE
SEMESTER: FALL 2023
INSTRUCTOR: DR. LE GRUENWALD
SCORE:

Contents

1 ER Diagram

Here is my ER diagram



2 Relational Database Schema

Here are my schema:

Process(process_id,process_data)
Assemblies(ass_id,ass_details)
Create(process_id,ass_id)
Customer(name,address, category)
Orders(name,ass_id)
Department(dept_num,dept_data)
Supervises(dept_num,process_id)
Fit(process_id, fit_type)
Paint(process_id, paint_type, painting_method)
Cut(process_id,cutting_type, machine_type)
Account(type, acct_id)
Job(process_id, ass_id, job_num)
Account(type, acct_id)
Costs(job_num,type, acct_id,process_id, ass_id)
Fit_Job(process_id, ass_id, job_num, labor)
Paint_Job(process_id, ass_id, job_num,color,volume, labor)
Cut_Job(process_id, ass_id, job_num, machine_type, time, material, labor)

3 Storage

Table Name	Query Number and Type	Search Key	Query Frequency	Selected File Organization	Justification
Customer	1 Insertion	name	30/Day	heap tree on name	At the moment adding lots of data and not accessing it directly often
Department	2 Insertion	dept_num	infrequent	Sequential on dept_num	Since this data is added infrequently but referenced by other tables often, sequential insertion seems appropriate.
Process (and sub categories)	3 Insertion	process_id, (sub category info)	infrequent	Sequential on process_id (and sub category id)	Infrequent insertion but often called
Supervises	3 Insertion	process_id and dept_num	infrequent	Sequential on process_id	Infrequent insertion but called often on process_id
Orders	4 Insertion	name, ass_id			
Customer	12 Range Search	name (in order) by category	100/Day	Multitable Clustering with category and name stored in a B^+ tree	Since this data is accessed often this table should be pre-built. New customers are added often so B^+ tree storage on name will be most efficient within this multitable