EcoCraft

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Description

Project Title: EcoCraft

GitHub Repository Details:
Repository Title: 4347DBPROJ
Owner: Dmahesh123
Repository Link: https://github.com/dmahesh123/4347DBPROJ

Team Members: Dharshini Mahesh, Amina Haque, Laurenne Oliver, Waseef Kabir, Momo Qais, Arhum Khan, Mohammad Islam

Delegation of Tasks:
Momo, Amina, and Laurenne worked to complete the "Introduction" section of Deliverable 1.

Dharshini, Mohammad, Waseef, and Arhum worked on the "Background and Related Work" section of Deliverable 1.

Amina, Waseef, and Dharshini worked on the "Design & Implementation EER Conceptual Data Model Design" of section 3.

Mohammad, Arhum Khan, and Laurenne Oliver worked on section 3's "Relational Data Model Design."

Momo worked on the "Create your Database and Populate" and "Database Query Execution" of section 3.

Dharshini worked on the "References" and "Description" sections of Deliverable 1.

Description and Motivation of EcoCraft:
  The main motivation behind our project is to reduce waste in a fun and creative way by using a database of creative arts and crafts projects, mainly using recycled materials
In today's world, sustainability is a growing concern and waste management is a critical issue. This project can take small actions, like turning discarded items into art, which in turn can make a significant impact over time, especially for the younger generation. By fostering creativity and encouraging the use of recycled materials, we aim to promote environmental consciousness in an engaging and educational way. We expect that the database design can be used in places such as schools or at home where children can create craft ideas with materials that already exist. Teachers and parents can integrate these projects and teach students the importance of upcycling

and reusing materials. This can additionally be used in community centers, summer camps, and anywhere where children can unleash their potential. The system can also serve as a useful tool for environmental organizations or workshops focused on sustainability to enable creative ways of reducing waste.

Project timeline:
October 18th - Complete the "Final Project Proposal" with all the group members.

Collaborated as a group to define the scope and goals of our project by brainstorming and collectively agreeing on the purpose of our project.

November 20th - Collaborate on dividing tasks and working on the project timeline.

After the proposal, the group met again to divide the tasks to ensure efficient collaboration and time management by working to define the timelines of our project.

November 25th - Complete the "Introduction" section.

Focused on drafting and completing the section by addressing the benefits and use of our project.

November 29th - Work on and complete the "Background and Related Work" section.

Researched existing work to build and differentiate our project idea and then summarized our findings.

October 6th - Use software to complete the "EER Conceptual Data Model Design."

Created the Enhanced Entity Relation model to serve as a foundation for the database design.

October 13th - Use software to create the relational model for the "Relational Data Model Design" section.

Transitioned to the relational model by using the EER model to ensure all the requirements of the database are met.

October 15th - Use SQL for the "Create your Database and Populate" and "Database Query Execution" sections.

Implement the database using SQL to populate the tables and develop queries for our system.

October 16th - Finalize Deliverable 1 and get ready to submit.

1. Introduction

Our project focuses on creating a database of craft ideas that utilize recycled materials. The motivation behind this project comes from the desire to reduce waste in a fun, engaging, and educational way. EcoCraft will also be a crafty activity caregivers and educational systems can use for kids. The database will store and relate various waste materials and tools needed for crafts. In the future, this design can be used in schools, homes, and other educational environments. Children can explore their creativity while learning about recycling and sustainability. By repurposing items that would usually be discarded, the system helps lower crafting costs, making it an affordable and eco-friendly option for both schools and households. We chose this topic to tackle three main points: waste reduction, educational enrichment, and cost efficiency in crafting. We believe it is an efficient and creative way to reduce waste while also providing kids with developmentally appropriate activities. Not only does it reduce waste but it helps caregivers, teachers, camp counselors, nannies, etc the ability to provide kids with activities with materials they have on hand.

Currently, we are not expecting EcoCraft to contribute anything new to the field of security, but rather prioritizing ensuring that the data input into the system is protected. Our system, however, indirectly supports environmental security by promoting recycling and reducing waste. Our project could be expanded in the future to collect user information & statistics securely while also ensuring that we are using this information to promote support for the environment among other applications that collect this information. This ultimately contributes to the security of natural resources, ensuring a healthier environment for future generations. Our project is unique compared to other similar applications because it does not require you to input any personal information into an account in order to utilize our application. This prevents any risk to users' personal information.

The database was designed to create a platform that links recycled materials to craft ideas, making recycling more accessible and enjoyable for users. We chose to design this particular database to bridge the gap between recycling education and practical application, allowing users to input available recyclable items and instantly receive creative craft suggestions. This approach supports environmental education by making the process of recycling interactive and engaging. The database serves as a resourceful tool for parents, teachers, and students to explore recycling in a hands-on way.

This project fills a gap between environmental education and practical sustainability. Many existing recycling initiatives lack an engaging, hands-on approach, especially for younger audiences. Our database transforms recycling into a creative, fun experience, making it more accessible and enjoyable for anyone of all ages. We not only promote environmental awareness but also encourage users to actively participate in recycling efforts. A real word problem that our design solves is when caregivers want to entertain kids but don't think they have anything on hand to do so. Our design, helps caregivers have the convenience of creating a craft with

materials on hand instead of spending the time and money to go to the store to buy supplies. Another primary issue our project will address is the reduction of waste and environmental sustainability. Finding ways to repurpose materials will help minimize the amount of waste in a fun and creative way. EcoCraft will encourage users to see potential in everyday waste items, promoting recycling and creative reuse.

2. Background and Related Work

There exist websites that relate to our database. These websites show ways to reuse and recycle items which is something that EcoCraft can use to provide arts and crafts projects for users. Listed below are the descriptions and the relations of other websites that are used in the development of EcoCraft for ideas.

| Description of the Project/Study	Relation to our project
https://www.instructables.com/ Autodesk Instructables is a website that shares step-by-step craft ideas submitted by users [1].	1. Both focus on crafts and DIY projects. 2. Our DB could integrate similar ideas of how different craft materials can be recycled.
https://ourfamilycode.com/50-recycled-crafts-activities-for-kids/ OurFamilyCode provides recycled crafts and activities for kids with commonly recycled household items [2].	1. It shows how specific items can be recycled into crafts. 2. Both focus on crafts for kids
https://earth911.com/about-earth911-mission-and-history/ Earth 911 is a website that encourages reusing and recycling for families by providing ways to reduce trash at home [3].	1. Its database can inspire our system to include detailed entries for each type of craft material. 2. The database breaks down items into categories which can be useful for crafts
https://www.cutoutandkeep.net/ Cut Out + Keep displays DIY ideas from anyone, and includes the difficulty, cost, and time to make each DIY idea [4].	1.Focuses on DIY ideas 2.Allows for easy addition of new crafts 3.Includes materials and amount of materials if the creator chooses to 4.Can search for ideas by name

Comparisons:

Aspects	EcoCraft (our database)	Instructables	OurFamilyCode	Earth 911	Cut Out + Keep
Purpose	Manage and optimize recycling with crafts for kids	Share DIY guides across various topics	Provide recycled craft activities for kids	Facilitate recycling and disposal information	Share craft tutorials and DIY projects
Material Focus	Household items	Tech and craft-specific items	Recycled household items	Recyclable materials	Fashion, jewelry, and art
Target Audience	Families/ Teachers with kids	DIY enthusiasts	Families with kids	General Public	DIY enthusiasts

How EcoCraft is different from other implementations:

EcoCraft is a database that allows users to input and retrieve craft ideas for children. This is similar to Instructables, OurFamilyCode, and Cut Out + Keep, which provide ideas and crafts but do not allow users to input their materials. Earth911 shows how to recycle but not how recycling can become a craft for kids. Overall, our database allows users to recycle and generate crafts in a personalizable way, making our database unique.

3. Design & Implementation (Phase I):
3.1. EER Conceptual Data Model Design:
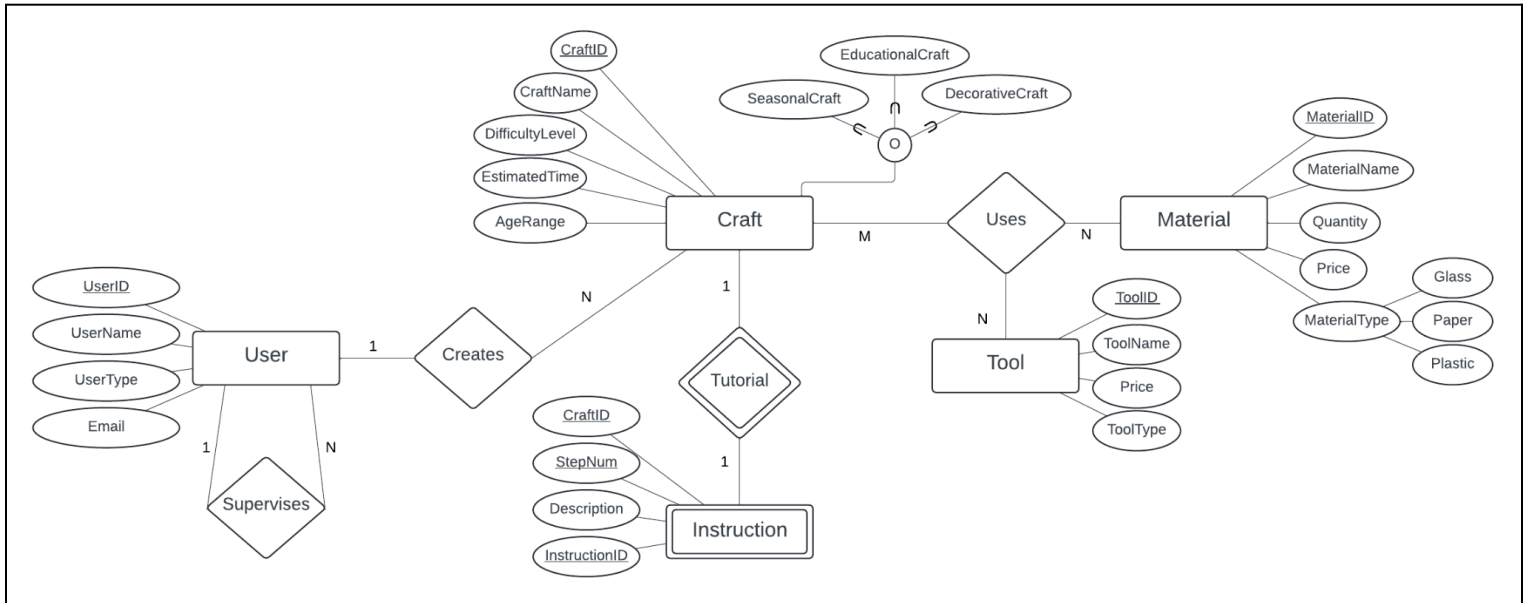
Entities:
User
- UserID (Primary Key)
- UserType
- UserName
- Email

Craft
- CraftID (Primary Key)
- CraftName
- DifficultyLevel
- EstimatedTime
- AgeRange

Instructions (Weak Entity)
- CraftID (Foreign Key)
- StepNumber
- Description
- InstructionID (PrimaryKey)

Material
- MaterialID (Primary Key)
- MaterialName
- Quantity
- Price
- MaterialType Composite(Plastic, Paper, Glass)

Tool
- ToolID (Primary Key)
- ToolName
- Price
- Tool Type

CraftMaterialRelation (Deleted)
- CraftID (Foreign key to crafts)
- MaterialID (Foreign Key to Materials)
- QuantityRequired
  (Primary Key is a composite of CraftID and MaterialID)

CraftToolRelation (Deleted)
- ToolID (Foreign key to Tool)
- CraftID(Foreign Key to Crafts)
- QuantityRequired
  (Primary Key is a composite of CraftID and MaterialID)

Relationships:
CraftMaterial
Craft ←→ Material: M (many crafts) to N (many materials)
Each craft can require multiple materials, and each material can be used in multiple crafts

CraftTool
Craft ←→ Tool: Used M
Each craft requires multiple tools, and each tool can be used across multiple crafts

Creates
User ←→ Craft: 1 (1 User) to N (Many crafts)
A user can create multiple crafts, but each craft is created by a single user

Recycles (M b/w Recycling Center and Material)
Materials can be recycled at multiple centers, and each center can recycle multiple materials.

SuperClass/Subclass:
Craft Categories Overlapping:
Superclass: "Craft"
Subclass: "Seasonal Craft," "DecorativeCraft"," EducationalCraft"

Weak Entity
Instructions: Instructions are a weak entity because they depend on the strong entity Craft to exist.

Unary Relationship
User supervises a User.

Ex: **(**Teacher (User) supervises a Student (User).
Parent (User) supervises a Child (User))

Binary Relationship
Craft Uses a Tool.
User creates a Craft.

Ternary Relationship
Craft uses Material and Tools

3.2. Relational Data Model Design:

User

UserID	UserType	UserName	Email

Craft

CraftID	CraftName	DifficultyLevel	EstimatedTime	AgeRange

Instructions

CraftID	StepNumber	Description	InstructionID

Material

MaterialID	MaterialName	Quantity	Price	MaterialType Composite

Tool

ToolID	ToolName	Price	Tool Type

3.3 Create your Database and Populate:

Database Creation

```sql
1  v  CREATE TABLE Users (
2          UserID INT PRIMARY KEY,
3          UserType VARCHAR(50),
4          UserName VARCHAR(100),
5          Email VARCHAR(100)
6      );
7
8  v  CREATE TABLE Craft (
9          CraftID INT PRIMARY KEY,
10         UserID INT,
11         CraftName VARCHAR(100),
12         DifficultyLevel VARCHAR(50),
13         EstimatedTime INT,
14         AgeRange VARCHAR(50),
15         FOREIGN KEY (UserID) REFERENCES Users(UserID)
16     );
17
18 v  CREATE TABLE Instructions (
19         InstructionID INT PRIMARY KEY,
20         CraftID INT,
21         StepNumber INT,
22         Description TEXT,
23         FOREIGN KEY (CraftID) REFERENCES Craft(CraftID)
24     );
25
26 v  CREATE TABLE Material (
27         MaterialID INT PRIMARY KEY,
28         MaterialName VARCHAR(100),
29         Quantity INT,
30         Price DECIMAL(10, 2),
31         MaterialType VARCHAR(50)
32     );
33
34 v  CREATE TABLE Tool (
35         ToolID INT PRIMARY KEY,
36         ToolName VARCHAR(100),
37         Price DECIMAL(10, 2),
38         ToolType VARCHAR(50)
39     );
40
41 v  CREATE TABLE CraftMaterialRelation (
42         CraftID INT,
43         MaterialID INT,
44         QuantityRequired INT,
45         PRIMARY KEY (CraftID, MaterialID),
46         FOREIGN KEY (CraftID) REFERENCES Craft(CraftID),
47         FOREIGN KEY (MaterialID) REFERENCES Material(MaterialID)
48     );
49
50 v  CREATE TABLE CraftToolRelation (
51         CraftID INT,
52         ToolID INT,
53         QuantityRequired INT,
54         PRIMARY KEY (CraftID, ToolID),
55         FOREIGN KEY (CraftID) REFERENCES Craft(CraftID),
56         FOREIGN KEY (ToolID) REFERENCES Tool(ToolID)
57     );
58
59 v  CREATE TABLE Supervises (
60         SupervisorID INT,
61         SupervisedID INT,
62         PRIMARY KEY (SupervisorID, SupervisedID),
63         FOREIGN KEY (SupervisorID) REFERENCES Users(UserID),
64         FOREIGN KEY (SupervisedID) REFERENCES Users(UserID)
65     );
66
67 v  CREATE TABLE RecyclingCenter (
68         CenterID INT PRIMARY KEY,
69         CenterName VARCHAR(100),
```

```sql
60       SupervisorID INT,
61       SupervisedID INT,
62       PRIMARY KEY (SupervisorID, SupervisedID),
63       FOREIGN KEY (SupervisorID) REFERENCES Users(UserID),
64       FOREIGN KEY (SupervisedID) REFERENCES Users(UserID)
65   );
66
67 ⌄ CREATE TABLE RecyclingCenter (
68       CenterID INT PRIMARY KEY,
69       CenterName VARCHAR(100),
70       Location VARCHAR(100)
71   );
72
73 ⌄ CREATE TABLE Recycles (
74       MaterialID INT,
75       CenterID INT,
76       PRIMARY KEY (MaterialID, CenterID),
77       FOREIGN KEY (MaterialID) REFERENCES Material(MaterialID),
78       FOREIGN KEY (CenterID) REFERENCES RecyclingCenter(CenterID)
79   );
80
81 ⌄ CREATE TABLE SeasonalCraft (
82       CraftID INT PRIMARY KEY,
83       FOREIGN KEY (CraftID) REFERENCES Craft(CraftID)
84   );
85
86 ⌄ CREATE TABLE DecorativeCraft (
87       CraftID INT PRIMARY KEY,
88       FOREIGN KEY (CraftID) REFERENCES Craft(CraftID)
89   );
90
91 ⌄ CREATE TABLE EducationalCraft (
92       CraftID INT PRIMARY KEY,
93       FOREIGN KEY (CraftID) REFERENCES Craft(CraftID)
94   );
95
```

Total rows: 0 of 0   Query complete 00:00:00.129   Ln 12, Col 33

Database Population

```sql
1 ⌄ INSERT INTO Users (UserID, UserType, UserName, Email)
2    VALUES
3    (1, 'Teacher', 'Alice Johnson', 'alice.johnson@example.com'),
4    (2, 'Student', 'Bob Smith', 'bob.smith@example.com'),
5    (3, 'Parent', 'Carol White', 'carol.white@example.com'),
6    (4, 'Teacher', 'David Green', 'david.green@example.com'),
7    (5, 'Student', 'Eve Brown', 'eve.brown@example.com'),
8    (6, 'Teacher', 'Frank Thomas', 'frank.thomas@example.com'),
9    (7, 'Parent', 'Grace Kelly', 'grace.kelly@example.com'),
10   (8, 'Student', 'Henry Adams', 'henry.adams@example.com'),
11   (9, 'Teacher', 'Ivy Martin', 'ivy.martin@example.com'),
12   (10, 'Student', 'Jake Turner', 'jake.turner@example.com');
13
```

```sql
INSERT INTO Craft (CraftID, UserID, CraftName, DifficultyLevel, EstimatedTime, AgeRange)
VALUES
(1, 1, 'Paper Airplane', 'Easy', 15, '5-10'),
(2, 2, 'Origami Crane', 'Medium', 30, '10-15'),
(3, 3, 'Beaded Bracelet', 'Easy', 20, '8-12'),
(4, 4, 'Wooden Birdhouse', 'Hard', 90, '12-18'),
(5, 5, 'Clay Sculpture', 'Medium', 60, '10-16'),
(6, 6, 'Knitted Scarf', 'Hard', 120, '12-18'),
(7, 7, 'Paper Mache Mask', 'Medium', 45, '10-15'),
(8, 8, 'DIY Picture Frame', 'Easy', 30, '8-12'),
(9, 9, 'Christmas Ornament', 'Easy', 20, '5-10'),
(10, 10, 'Lego Robot', 'Medium', 60, '10-15');
```

```sql
INSERT INTO Instructions (InstructionID, CraftID, StepNumber, Description)
VALUES
(1, 1, 1, 'Fold the paper in half lengthwise.'),
(2, 1, 2, 'Fold the corners into triangles.'),
(3, 1, 3, 'Fold the wings down.'),
(4, 2, 1, 'Fold the paper into a square.'),
(5, 2, 2, 'Fold diagonally to form a triangle.'),
(6, 2, 3, 'Bring the edges together to form a crane shape.'),
(7, 3, 1, 'Thread the beads onto the string.'),
(8, 3, 2, 'Tie a knot at the end of the string.'),
(9, 4, 1, 'Cut the wooden pieces according to the measurements.'),
(10, 4, 2, 'Assemble the pieces to form the birdhouse.');
```

```sql
INSERT INTO Material (MaterialID, MaterialName, Quantity, Price, MaterialType)
VALUES
(1, 'Paper', 100, 0.10, 'Paper'),
(2, 'Beads', 200, 0.05, 'Plastic'),
(3, 'Wood', 50, 1.50, 'Wood'),
(4, 'Clay', 30, 2.00, 'Plastic'),
(5, 'Yarn', 40, 1.20, 'Fabric'),
(6, 'Paint', 25, 3.00, 'Glass'),
(7, 'Glue', 50, 0.50, 'Plastic'),
(8, 'Lego Bricks', 500, 0.15, 'Plastic'),
(9, 'Wire', 100, 0.75, 'Metal'),
(10, 'Fabric', 60, 1.00, 'Fabric');
```

```sql
INSERT INTO Tool (ToolID, ToolName, Price, ToolType)
VALUES
(1, 'Scissors', 2.00, 'Cutting'),
(2, 'Paintbrush', 1.50, 'Painting'),
(3, 'Needle', 1.00, 'Sewing'),
(4, 'Hammer', 5.00, 'Building'),
(5, 'Screwdriver', 3.50, 'Building'),
(6, 'Hot Glue Gun', 7.00, 'Adhesive'),
(7, 'Saw', 8.00, 'Cutting'),
(8, 'Pliers', 4.50, 'Bending'),
(9, 'Lego Separator', 2.00, 'Building'),
(10, 'Measuring Tape', 1.75, 'Measuring');
```

```sql
INSERT INTO CraftMaterialRelation (CraftID, MaterialID, QuantityRequired)
VALUES
(1, 1, 1),
(2, 1, 1),
(3, 2, 20),
(4, 3, 5),
(5, 4, 1),
(6, 5, 2),
(7, 1, 3),
(8, 10, 2),
(9, 6, 1),
(10, 8, 50);
```

```sql
INSERT INTO CraftToolRelation (CraftID, ToolID, QuantityRequired)
VALUES
(1, 1, 1),
(2, 2, 1),
(3, 3, 1),
(4, 4, 1),
(5, 2, 1),
(6, 3, 1),
(7, 6, 1),
(8, 1, 1),
(9, 2, 1),
(10, 9, 1);
```

```sql
INSERT INTO Supervises (SupervisorID, SupervisedID)
VALUES
(1, 2),
(3, 5),
(4, 6),
(1, 8),
(7, 10),
(1, 9),
(6, 8),
(9, 10),
(4, 7),
(3, 4);
```

```sql
INSERT INTO RecyclingCenter (CenterID, CenterName, Location)
VALUES
(1, 'City Recycling Center', 'Downtown'),
(2, 'Green Earth Recycling', 'Suburbs'),
(3, 'Eco Friendly Recycling', 'Uptown'),
(4, 'Neighborhood Recycling', 'Residential Area'),
(5, 'Community Recycling', 'Park Area'),
(6, 'Reclaim and Recycle', 'Industrial Zone'),
(7, 'Planet Care Recycling', 'City Outskirts'),
(8, 'GreenCycle', 'Main Street'),
(9, 'Future Earth Recycling', 'Town Center'),
(10, 'Clean Earth Recycling', 'Rural Area');
```

```
 1 ∨  INSERT INTO Recycles (MaterialID, CenterID)
 2     VALUES
 3     (1, 1),
 4     (2, 2),
 5     (3, 3),
 6     (4, 4),
 7     (5, 5),
 8     (6, 6),
 9     (7, 7),
10     (8, 8),
11     (9, 9),
12     (10, 10);
```

```
 1 ∨  INSERT INTO SeasonalCraft (CraftID)
 2     VALUES
 3     (1), (4), (9);
 4
 5 ∨  INSERT INTO DecorativeCraft (CraftID)
 6     VALUES
 7     (3), (6), (8);
 8
 9 ∨  INSERT INTO EducationalCraft (CraftID)
10     VALUES
11     (2), (5), (10);
12     |
```

Database Tables:

```
1    select * from craft;
```

Data Output   Messages   Notifications

	craftid [PK] integer	userid integer	craftname character varying (100)	difficultylevel character varying (50)	estimatedtime integer	agerange character varying (50)
1	1	1	Paper Airplane	Easy	15	5-10
2	2	2	Origami Crane	Medium	30	10-15
3	3	3	Beaded Bracelet	Easy	20	8-12
4	4	4	Wooden Birdhouse	Hard	90	12-18
5	5	5	Clay Sculpture	Medium	60	10-16
6	6	6	Knitted Scarf	Hard	120	12-18
7	7	7	Paper Mache Mask	Medium	45	10-15
8	8	8	DIY Picture Frame	Easy	30	8-12
9	9	9	Christmas Ornament	Easy	20	5-10
10	10	10	Lego Robot	Medium	60	10-15

```
1   select * from craftmaterialrelation;
```

Data Output   Messages   Notifications

	craftid [PK] integer	materialid [PK] integer	quantityrequired integer
1	1	1	1
2	2	1	1
3	3	2	20
4	4	3	5
5	5	4	1
6	6	5	2
7	7	1	3
8	8	10	2
9	9	6	1
10	10	8	50

```
1    select * from crafttoolrelation;
```

	craftid [PK] integer	toolid [PK] integer	quantityrequired integer
1	1	1	1
2	2	2	1
3	3	3	1
4	4	4	1
5	5	2	1
6	6	3	1
7	7	6	1
8	8	1	1
9	9	2	1
10	10	9	1

```
1   select * from decorativecraft;
```

Data Output   Messages   Notifications

	craftid [PK] integer
1	3
2	6
3	8

```
1  select * from educationalcraft;
```

Data Output   Messages   Notifications

	craftid [PK] integer
1	2
2	5
3	10

```
1    select * from instructions;
```

Data Output   Messages   Notifications

	instructionid [PK] integer	craftid integer	stepnumber integer	description text
1	1	1	1	Fold the paper in half lengthwise.
2	2	1	2	Fold the corners into triangles.
3	3	1	3	Fold the wings down.
4	4	2	1	Fold the paper into a square.
5	5	2	2	Fold diagonally to form a triangle.
6	6	2	3	Bring the edges together to form a crane shape.
7	7	3	1	Thread the beads onto the string.
8	8	3	2	Tie a knot at the end of the string.
9	9	4	1	Cut the wooden pieces according to the measurements.
10	10	4	2	Assemble the pieces to form the birdhouse.

```
1  select * from material;
```

Data Output   Messages   Notifications

	materialid [PK] integer	materialname character varying (100)	quantity integer	price numeric (10,2)	materialtype character varying (50)
1	1	Paper	100	0.10	Paper
2	2	Beads	200	0.05	Plastic
3	3	Wood	50	1.50	Wood
4	4	Clay	30	2.00	Plastic
5	5	Yarn	40	1.20	Fabric
6	6	Paint	25	3.00	Glass
7	7	Glue	50	0.50	Plastic
8	8	Lego Bricks	500	0.15	Plastic
9	9	Wire	100	0.75	Metal
10	10	Fabric	60	1.00	Fabric

Query   Query History

```
1    select * from recycles;
```

Data Output   Messages   Notifications

	materialid [PK] integer	centerid [PK] integer
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10

```
1    select * from recyclingcenter;
```

Data Output   Messages   Notifications

	centerid [PK] integer	centername character varying (100)	location character varying (100)
1	1	City Recycling Center	Downtown
2	2	Green Earth Recycling	Suburbs
3	3	Eco Friendly Recycling	Uptown
4	4	Neighborhood Recycling	Residential Area
5	5	Community Recycling	Park Area
6	6	Reclaim and Recycle	Industrial Zone
7	7	Planet Care Recycling	City Outskirts
8	8	GreenCycle	Main Street
9	9	Future Earth Recycling	Town Center
10	10	Clean Earth Recycling	Rural Area

```
1    select * from seasonalcraft;
```

Data Output Messages Notifications

	craftid [PK] integer
1	1
2	4
3	9

```
1   select * from supervises;
```

Data Output   Messages   Notifications

	supervisorid [PK] integer	supervisedid [PK] integer
1	1	2
2	3	5
3	4	6
4	1	8
5	7	10
6	1	9
7	6	8
8	9	10
9	4	7
10	3	4

Query   Query History

```sql
1  select * from tool;
```

Data Output   Messages   Notifications

toolid [PK] integer	toolname character varying (100)	price numeric (10,2)	tooltype character varying (50)
1	Scissors	2.00	Cutting
2	Paintbrush	1.50	Painting
3	Needle	1.00	Sewing
4	Hammer	5.00	Building
5	Screwdriver	3.50	Building
6	Hot Glue Gun	7.00	Adhesive
7	Saw	8.00	Cutting
8	Pliers	4.50	Bending
9	Lego Separator	2.00	Building
10	Measuring Tape	1.75	Measuring

```
1  select * from users;
```

Data Output   Messages   Notifications

userid [PK] integer	usertype character varying (50)	username character varying (100)	email character varying (100)
1	Teacher	Alice Johnson	alice.johnson@example.com
2	Student	Bob Smith	bob.smith@example.com
3	Parent	Carol White	carol.white@example.com
4	Teacher	David Green	david.green@example.com
5	Student	Eve Brown	eve.brown@example.com
6	Teacher	Frank Thomas	frank.thomas@example.com
7	Parent	Grace Kelly	grace.kelly@example.com
8	Student	Henry Adams	henry.adams@example.com
9	Teacher	Ivy Martin	ivy.martin@example.com
10	Student	Jake Turner	jake.turner@example.com

3.4 Database Query Execution:

Database Queries

Query   Query History

```sql
1  SELECT *
2  FROM Craft
3  WHERE EstimatedTime > 60;
4
```

Data Output   Messages   Notifications

	craftid [PK] integer	userid integer	craftname character varying (100)	difficultylevel character varying (50)	estimatedtime integer	agerange character varying (50)
1	4	4	Wooden Birdhouse	Hard	90	12-18
2	6	6	Knitted Scarf	Hard	120	12-18

Query   Query History

```sql
1  Select * from material;
2
3  --INSERT INTO Material (MaterialID, MaterialName, Quantity, Price, MaterialType) VALUES (11, 'Cardboard', 50, 0.75, 'Paper');
4
```

Data Output   Messages   Notifications

	materialid [PK] integer	materialname character varying (100)	quantity integer	price numeric (10,2)	materialtype character varying (50)
1	1	Paper	100	0.10	Paper
2	2	Beads	200	0.05	Plastic
3	3	Wood	50	1.50	Wood
4	4	Clay	30	2.00	Plastic
5	5	Yarn	40	1.20	Fabric
6	6	Paint	25	3.00	Glass
7	7	Glue	50	0.50	Plastic
8	8	Lego Bricks	500	0.15	Plastic
9	9	Wire	100	0.75	Metal
10	10	Fabric	60	1.00	Fabric
11	11	Cardboard	50	0.75	Paper

```
1   select * from tool;
2
3   --DELETE FROM Tool WHERE ToolID = 5;
4
```

Data Output   Messages   Notifications

	toolid [PK] integer	toolname character varying (100)	price numeric (10,2)	tooltype character varying (50)
1	1	Scissors	2.00	Cutting
2	2	Paintbrush	1.50	Painting
3	3	Needle	1.00	Sewing
4	4	Hammer	5.00	Building
5	6	Hot Glue Gun	7.00	Adhesive
6	7	Saw	8.00	Cutting
7	8	Pliers	4.50	Bending
8	9	Lego Separator	2.00	Building
9	10	Measuring Tape	1.75	Measuring

```
1   select * from craft;
2
3   --UPDATE Craft SET DifficultyLevel = 'Very Hard' WHERE CraftID = 3;
4
```

Data Output   Messages   Notifications

	craftid [PK] integer	userid integer	craftname character varying (100)	difficultylevel character varying (50)	estimatedtime integer	agerange character varying (50)
1	1	1	Paper Airplane	Easy	15	5-10
2	2	2	Origami Crane	Medium	30	10-15
3	4	4	Wooden Birdhouse	Hard	90	12-18
4	5	5	Clay Sculpture	Medium	60	10-16
5	6	6	Knitted Scarf	Hard	120	12-18
6	7	7	Paper Mache Mask	Medium	45	10-15
7	8	8	DIY Picture Frame	Easy	30	8-12
8	9	9	Christmas Ornament	Easy	20	5-10
9	10	10	Lego Robot	Medium	60	10-15
10	3	3	Beaded Bracelet	Very Hard	20	8-12

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