Department of Computer Engineering

CSE5041 Database Design & Development
Project Report

Crowdfunding Platform

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

Crowdfunding is a new and exciting way of financing that has emerged in recent years, providing an alternative to traditional financing methods. This method allows individuals and organizations to raise funds from a large number of people who contribute small amounts of money through an online platform.

• Each campaign is represented by a Campaign entity, uniquely identified by a CampaignID. The database stores campaign details, including Name, Description, GoalAmount, CurrentAmount, StartDate, EndDate, Status, CreatorID (FK), and BackerID (FK).

- Backers are captured in the Backer entity with a BackerID (PK). Backer information encompasses Email, Password, and Amount.

- Fund Disbursements are recorded in the FundDisbursement entity, identified by a DisbursementID (PK). The database stores details such as CampaignID (FK), Amount, and Date.

- Creators initiating campaigns are represented in the Creator entity with a CreatorID (PK). Creator details include Username, Email, Password.

- Administrators are managed through the Admin entity with an AdminID (PK). Admin information encompasses Username, Email, and Password.

- Campaigns are categorized into distinct themes using the Category entity. Each category is identified by a CategoryID (PK) and has a Name.

2 ENTITY RELATIONAL MODEL

2.1 ENHANCED ER DIAGRAM

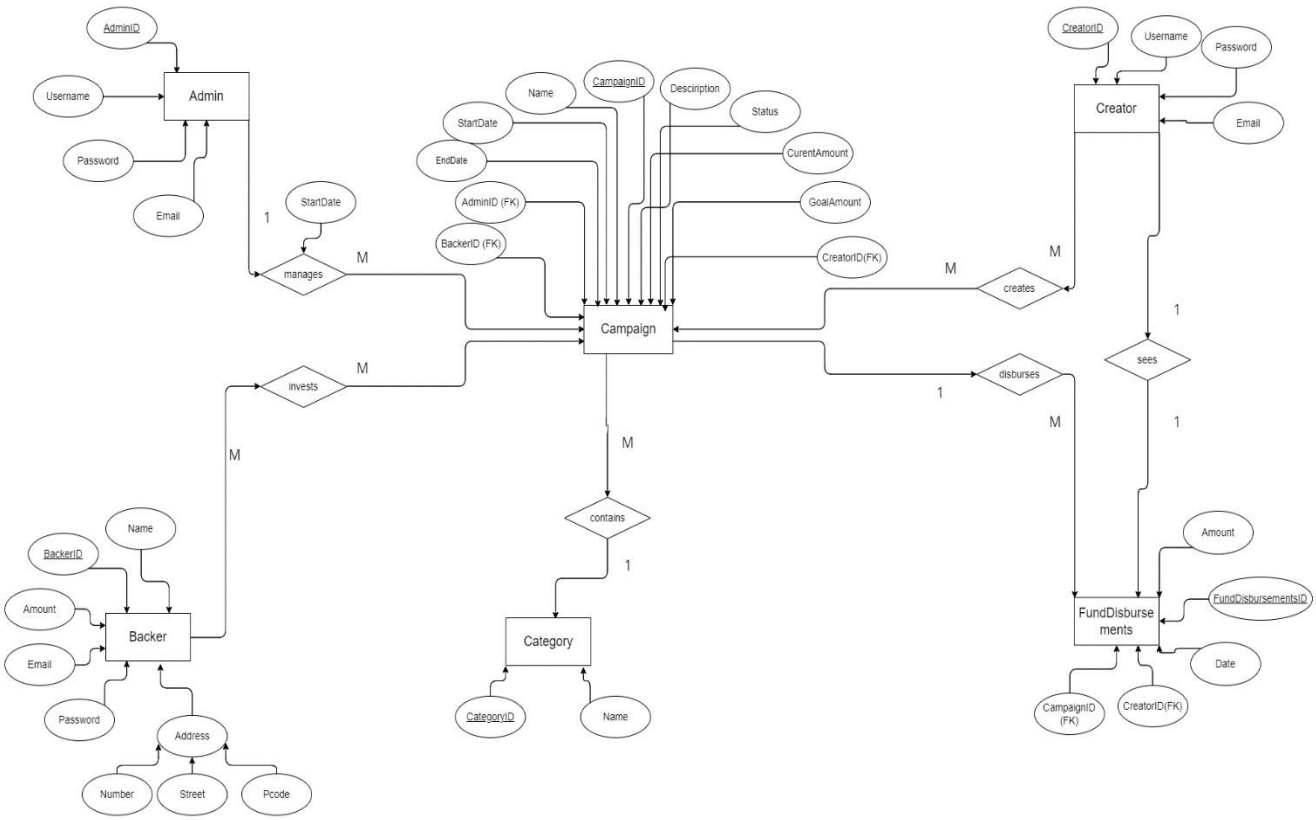


Figure 1: EER diagram of the Company Employee Administrative Database

2.2 RELATIONAL SCHEMA & MAPPING

- **Mapping a regular entity**

Campaign

CampaignID	Name	Desciription	Status	StartDate	EndDate	CurrentAmount	GoalAmount

Admin

AdminID	Username	Password	Email

Creator

CreatorID	Username	Password	Email

Backer

BackerID	Email	Password	Amount	Name	Number	Street	Pcode

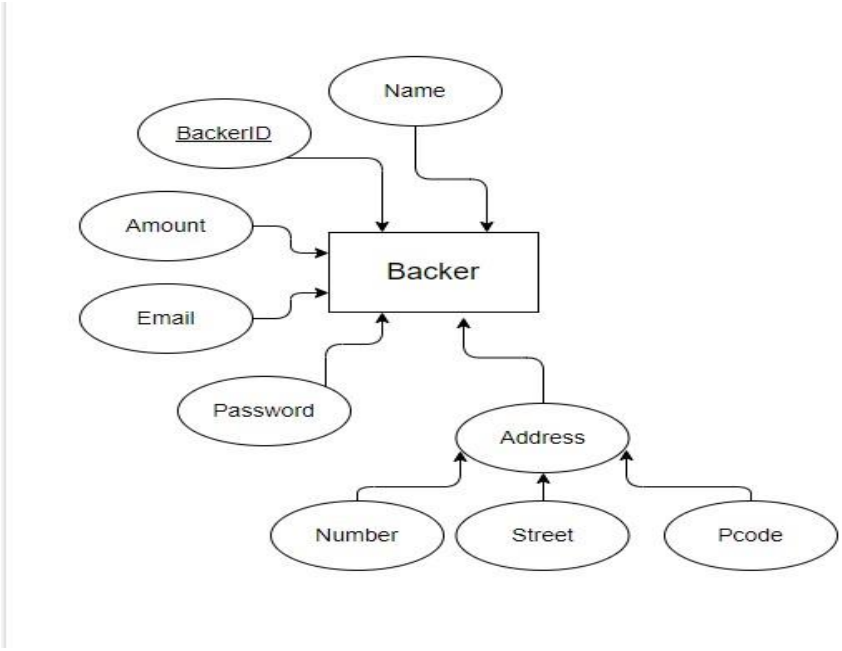
FundDisbursements

FundDisbursementsID	Amount	Date

Category

CategoryID	Name

- **Mapping a composite attribute**



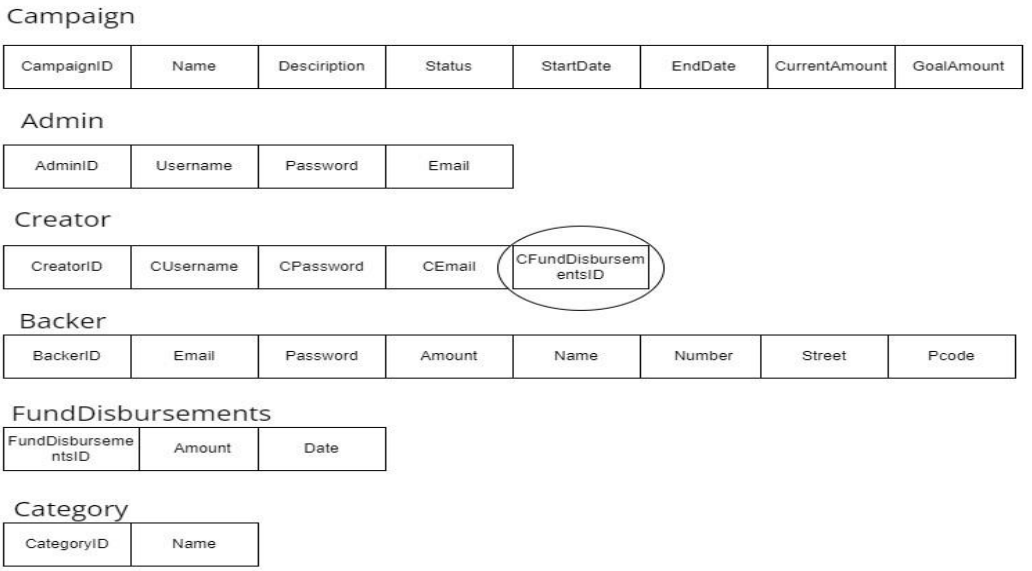
Relational Version #1

BackerID	Name	Amount	Email	Password	Address

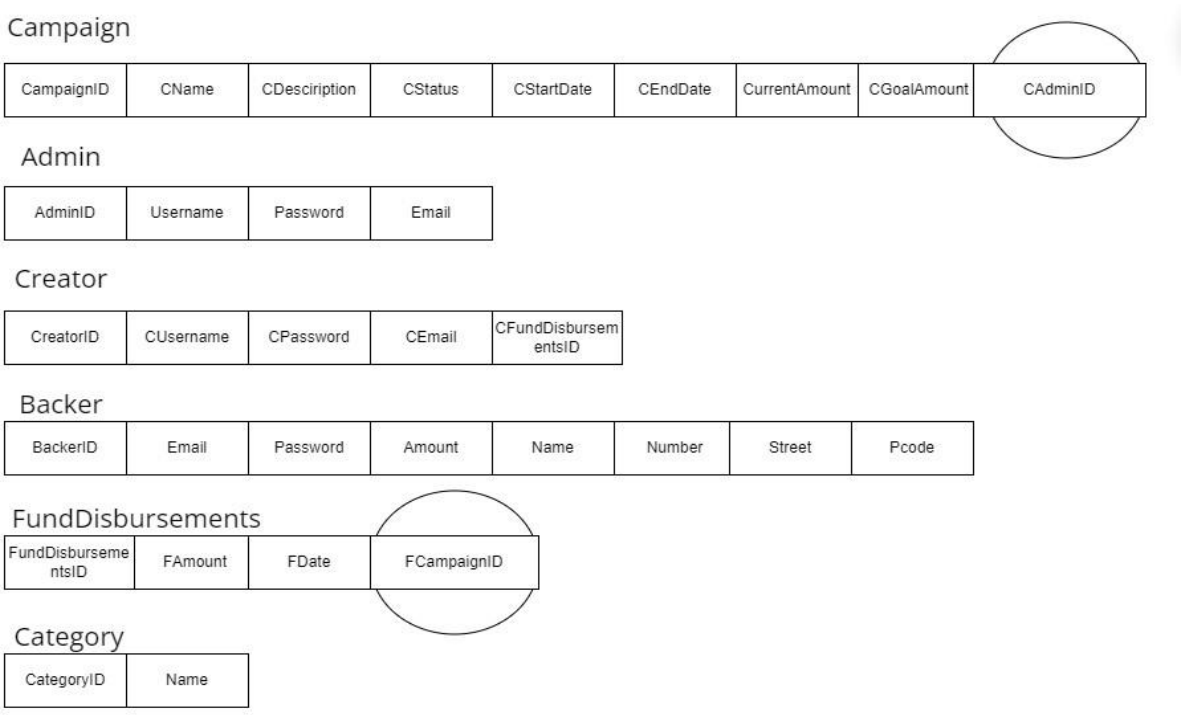
Relational Version #2

BackerID	Name	Amount	Email	Password	Number	Street	Pcode

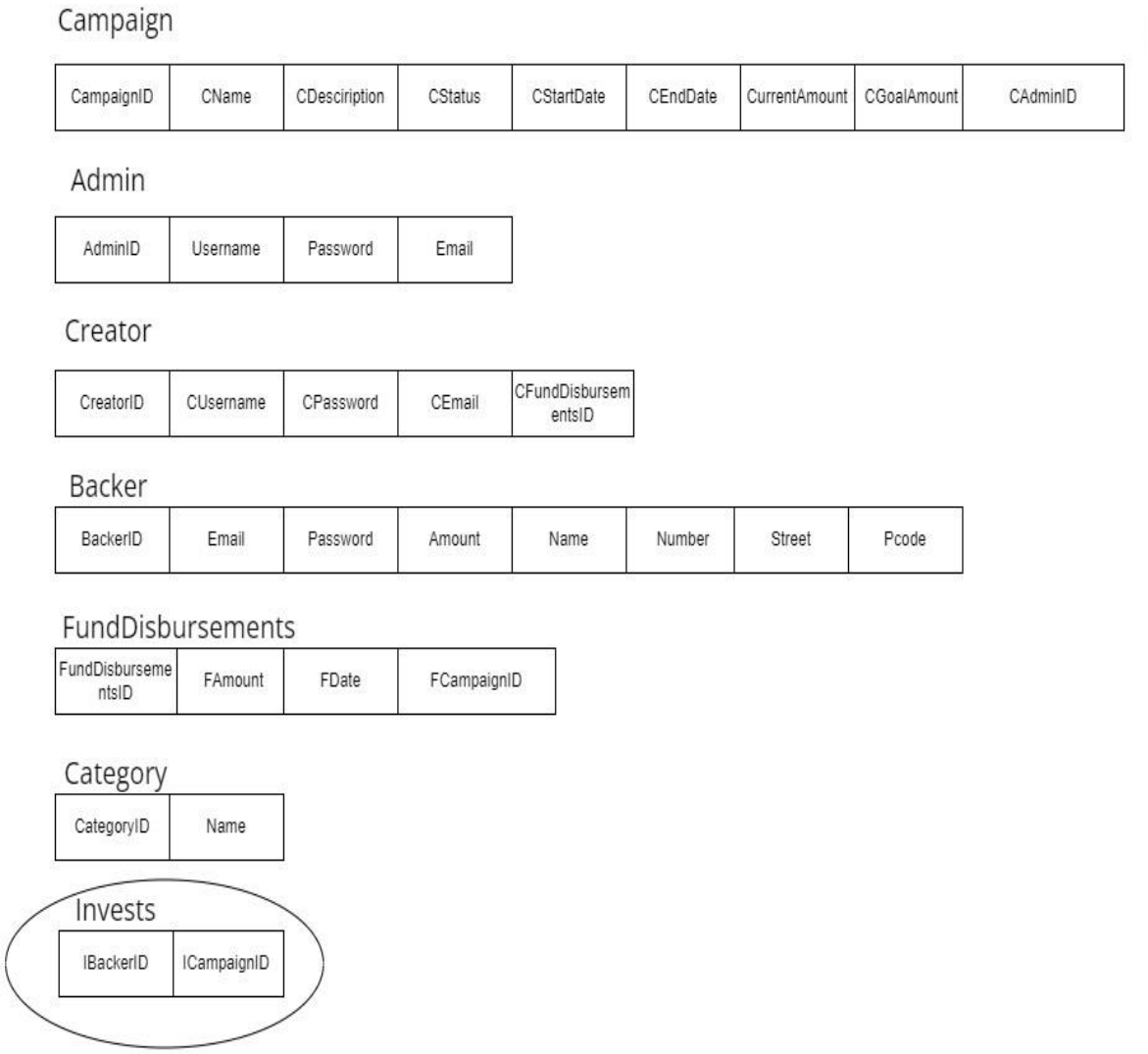
MAPPING OF BINARY 1:1 RELATIONSHIPS



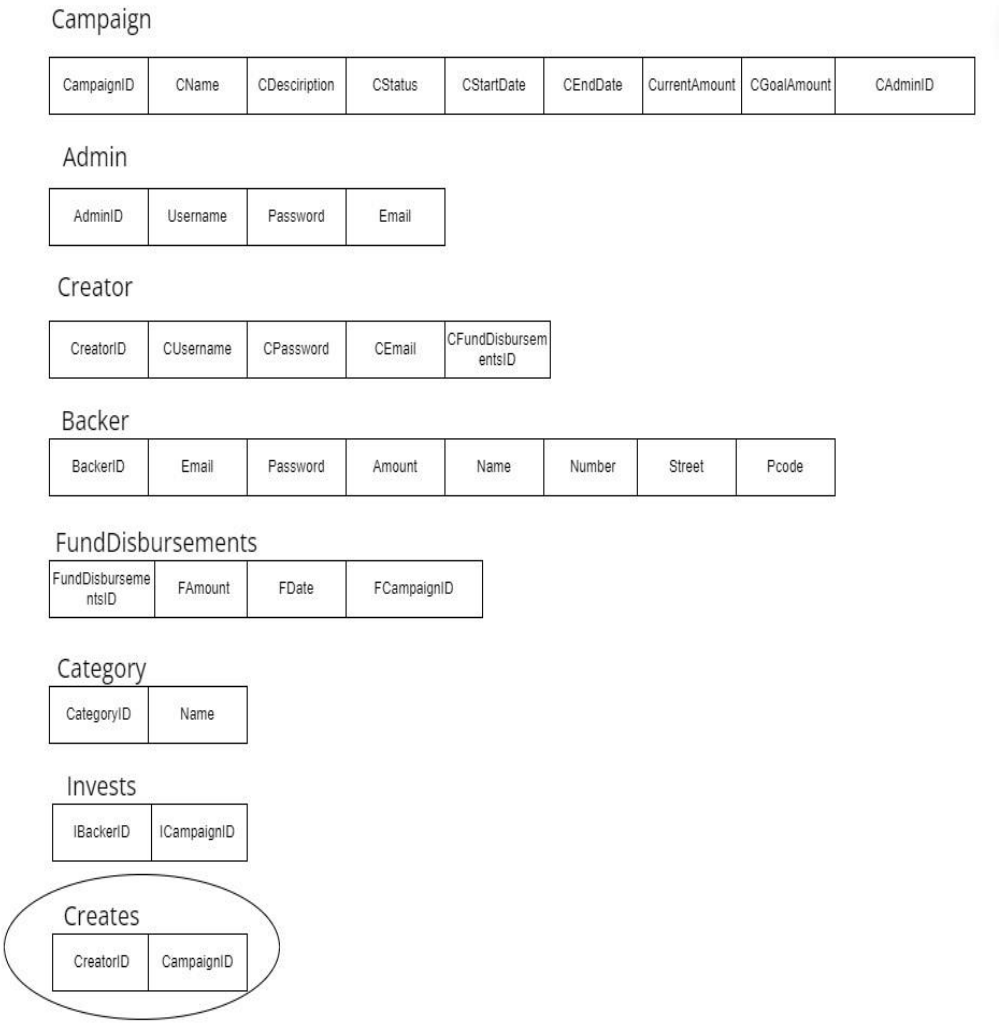
MAPPING OF BINARY 1:N RELATIONSHIPS



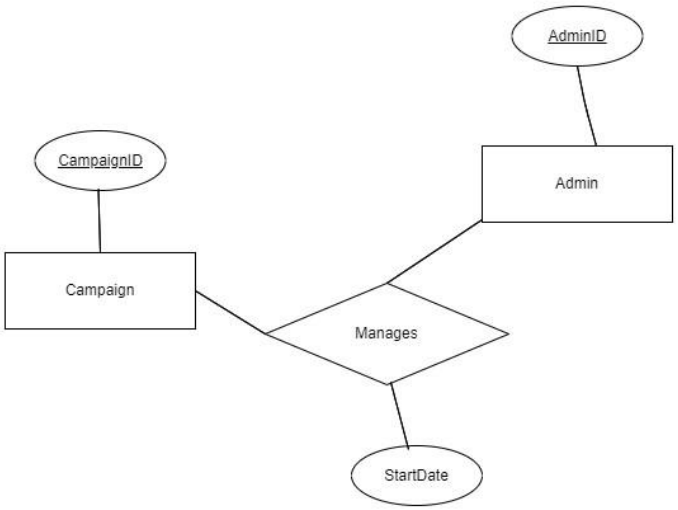
MAPPING OF BINARY M:N RELATIONSHIPS

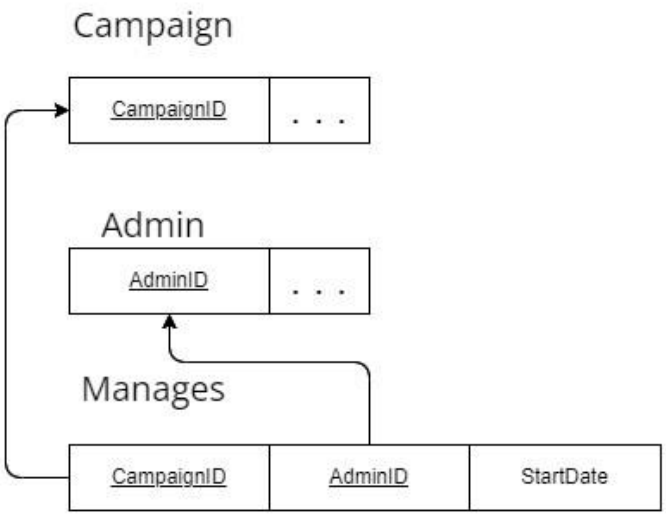


- **Mapping a multivalued attribute**



- **Mapping Unary Relationships**





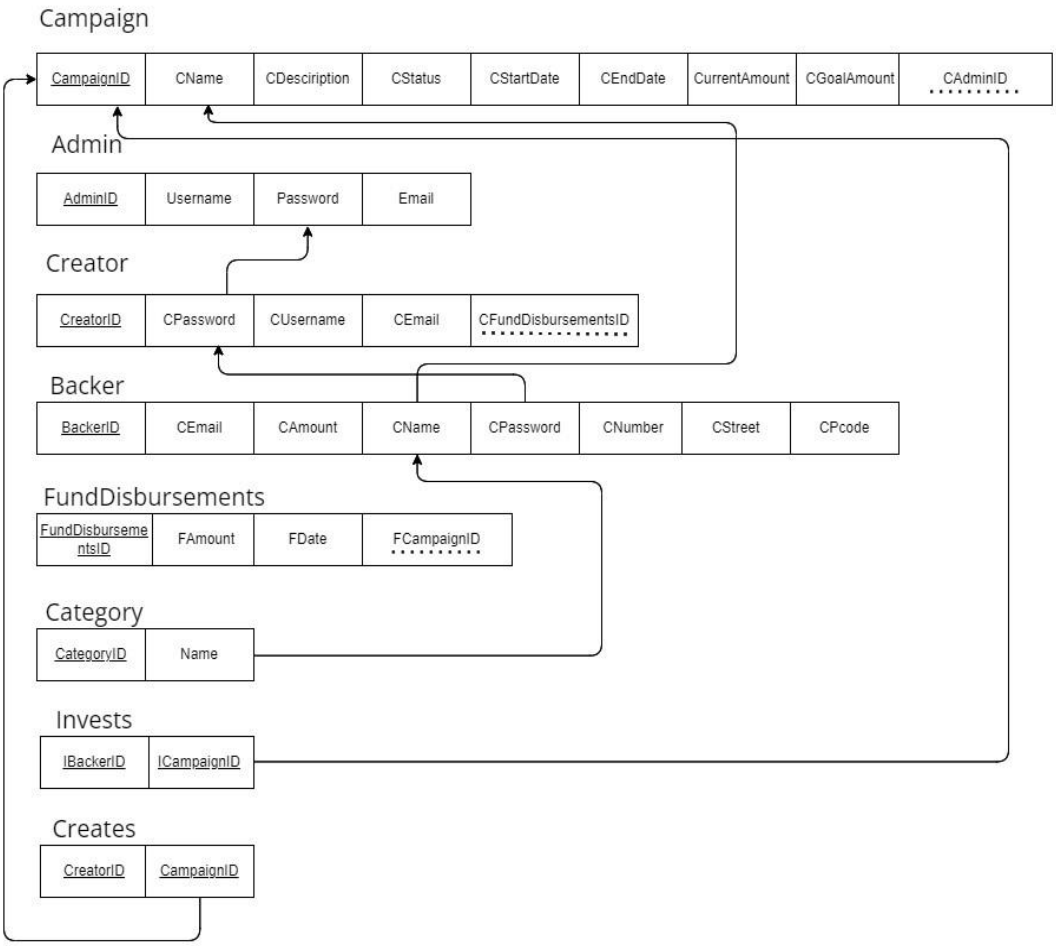


Figure 2: Relational schema of the Company Employee Administrative Database with arrows indicating referential integrity

3 NORMALIZATION

3.1 FUNCTIONAL DEPENDENCIES

FD1:CampaignID → CName, Cdesciription, Cstatus, CstartDate, CEndDate, CurrentAmount, CGoalAmount, CAdminID
FD2:AdminID → Username, Password, Email
FD3:CreatorID → Cpassword, Cusername, CEmail, CFundDisbursementsID
FD4:BackerID → CEmail, CAmount, CName, CPassword, CNumber, CStreet, CPcode
FD5:FundDisbursementsID → FAmount, FDate, FCampaignID
FD6:CategoryID → Name
FD7:IBackerID → ICampaignID FD8:CreatorID
→ CampaignID

3.2 UNNORMALISED FORM

FD1:CampaignID → CName, Cdesciription, Cstatus, CstartDate, CEndDate, CurrentAmount, CGoalAmount, CAdminID

FD2:AdminID → Username, Password, Email

FD3:CreatorID → Cpassword, Cusername, CEmail, CFundDisbursementsID

FD4:BackerID → CEmail, CAmount, CName, CPassword, CNumber, CStreet, CPcode

FD5:FundDisbursementsID → FAmount, FDate, FCampaignID

FD6:CategoryID → Name

FD7:IBackerID → ICampaignID

FD8:CreatorID → CampaignID

3.3 FIRST NORMAL FORM

FD1:CampaignID → CName, Cdesciription, Cstatus, CstartDate, CEndDate, CurrentAmount, CGoalAmount, CAdminID

FD2:AdminID → Username, Password, Email

FD3:CreatorID → Cpassword, Cusername, CEmail, CFundDisbursementsID

FD4:BackerID → CEmail, CAmount, CName, CPassword, CNumber, CStreet, CPcode

FD5:FundDisbursementsID → FAmount, FDate, FCampaignID

FD6:CategoryID → Name

FD7:IBackerID → ICampaignID

FD8:CreatorID → CampaignID