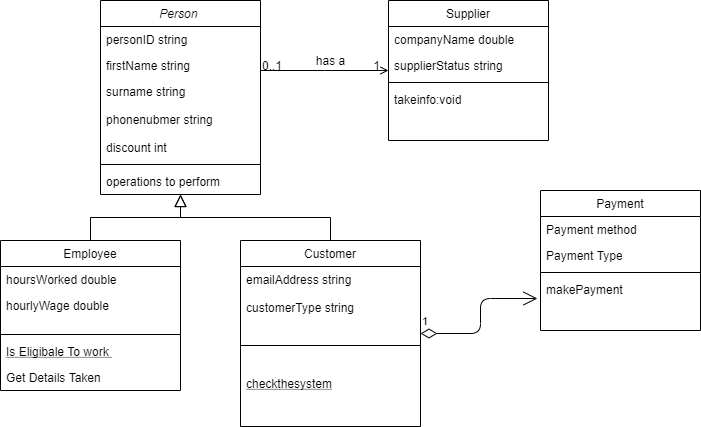
# Purpose of the system

The program that is given is meant to be used to create a basic system for an ABC business intends to provide a framework for organizing data on various people inside the framework of an ABC store, enabling the creation, editing, and presentation of pertinent information. It also has logic for calculating discounts for employees according to the number of hours they have currently spent working.

## Class Diagram



# Code

Abcdriver.java

package AbcShopSystem;

import java.text.DecimalFormat;

public class AbcShopDriver {

public static void main(String[] args) {

// Create Employee objects

Employee employee1 = new Employee(30.0, 25.0, "Finance");

Employee employee2 = new Employee(18.0, 20.0, "Human Resources");

// Create Customer objects

Customer customer1 = new Customer("john@example.com", CustomerType.GOLD, "SYD AUS", "123123");

Customer customer2 = new Customer();

customer2.setEmailAddress("john@example.com");

customer2.setCustomerType(CustomerType.VIP);

customer2.setAddress("SYD AUS");

customer2.setC\_ph\_number("123123");

// Create Supplier objects

Supplier supplier1 = new Supplier(123.0, SupplierStatus.FUTURE, "SYD AUS");

Supplier supplier2 = new Supplier();

supplier2.setCompanyName(456.0);

supplier2.setSupplierStatus(SupplierStatus.ACTIVE);

supplier2.setSupplier\_address("456 Oak St");

// Call setDiscount for each object

employee1.setDiscount();

employee2.setDiscount();

customer1.setDiscount();

customer2.setDiscount();

supplier1.setDiscount();

supplier2.setDiscount();

// Display details of all objects

displayObjectDetails(employee1);

displayObjectDetails(employee2);

displayObjectDetails(customer1);

displayObjectDetails(customer2);

displayObjectDetails(supplier1);

displayObjectDetails(supplier2);

// Display the total amount of discount paid by ABC retail shop

double totalDiscount = calculateTotalDiscount(employee1, employee2, customer1, customer2, supplier1, supplier2);

System.out.println("\nTotal Discount Paid by ABC Retail Shop: " + formatCurrency(totalDiscount));

}

// Method to display details of an object and its discount

private static void displayObjectDetails(Object obj) {

System.out.println("Details for " + obj.getClass().getSimpleName());

System.out.println(obj.toString());

if (obj instanceof Employee) {

System.out.println("Discount: " + formatPercentage(((Employee) obj).getDiscount()));

} else if (obj instanceof Customer) {

System.out.println("Discount: " + formatPercentage(((Customer) obj).getDiscount()));

} else if (obj instanceof Supplier) {

System.out.println("Discount: " + formatPercentage(((Supplier) obj).getDiscount()));

}

System.out.println();

}

// Method to calculate total discount paid by ABC retail shop

private static double calculateTotalDiscount(Object... objects) {

double totalDiscount = 0.0;

for (Object obj : objects) {

if (obj instanceof Employee) {

totalDiscount += ((Employee) obj).getDiscount();

} else if (obj instanceof Customer) {

totalDiscount += ((Customer) obj).getDiscount();

} else if (obj instanceof Supplier) {

totalDiscount += ((Supplier) obj).getDiscount();

}

}

return totalDiscount;

}

// Helper method to format currency

private static String formatCurrency(double amount) {

DecimalFormat currencyFormat = new DecimalFormat("#,##0.00");

return "$" + currencyFormat.format(amount);

}

// Helper method to format percentage

private static String formatPercentage(double percentage) {

DecimalFormat percentageFormat = new DecimalFormat("0.00%");

return percentageFormat.format(percentage);

}

}

Customer.java

package AbcShopSystem;

public class Customer extends Person{

//Q no 1

private String emailAddress;

private CustomerType customerType;

private String address;

private String c\_ph\_number;

//Q.no 2

public Customer() {

this.emailAddress="smriti@gmail.coom";

this.customerType=CustomerType.NORMAL;

this.address="syd";

this.c\_ph\_number="1234445666";

}

public Customer(String emailAddress, CustomerType customerType, String address, String c\_ph\_number) {

this.emailAddress = emailAddress;

this.customerType = customerType;

this.address = address;

this.c\_ph\_number = c\_ph\_number;

}

//getter and setters Q no 3

public String getEmailAddress() {

return emailAddress;

}

public void setEmailAddress(String emailAddress) {

this.emailAddress = emailAddress;

}

public CustomerType getCustomerType() {

return customerType;

}

public void setCustomerType(CustomerType customerType) {

this.customerType = customerType;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

public String getC\_ph\_number() {

return c\_ph\_number;

}

public void setC\_ph\_number(String c\_ph\_number) {

this.c\_ph\_number = c\_ph\_number;

}

@Override

public String toString() {

return "Customer{" +

"emailAddress='" + emailAddress + '\'' +

", customerType=" + customerType +

", address='" + address + '\'' +

", c\_ph\_number='" + c\_ph\_number + '\'' +

'}';

}

public void setDiscount() {

switch (customerType) {

case NORMAL:

this.discount = 0.0; // 0% discount for normal customers

break;

case GOLD:

this.discount = 0.03; // 3% discount for gold customers

break;

case VIP:

this.discount = 0.05; // 5% discount for VIP customers

break;

default:

this.discount = 0.0; // default discount if type is not recognized

}

}

}

CustomerType.java

package AbcShopSystem;

enum CustomerType {

NORMAL,

GOLD,

VIP

}

Employee.java

package AbcShopSystem;

public class Employee extends Person{

//Q no 1

private double hoursWorked;

private double hourlyWage;

private String department;

//Qno 2

public Employee() {

this.hoursWorked=123333333.0;

this.hourlyWage=123;

this.department="ER";

}

public Employee(double hoursWorked, double hourlyWage, String department) {

this.hoursWorked = hoursWorked;

this.hourlyWage = hourlyWage;

this.department = department;

}

//Q no 3

public double getHoursWorked() {

return hoursWorked;

}

public void setHoursWorked(double hoursWorked) {

this.hoursWorked = hoursWorked;

}

public double getHourlyWage() {

return hourlyWage;

}

public void setHourlyWage(double hourlyWage) {

this.hourlyWage = hourlyWage;

}

public String getDepartment() {

return department;

}

public void setDepartment(String department) {

this.department = department;

}

@Override

public String toString() {

return "Employee{" +

"hoursWorked=" + hoursWorked +

", hourlyWage=" + hourlyWage +

", department='" + department + '\'' +

'}';

}

public void setDiscount() {

if (hoursWorked < 20) {

this.discount = 0.05; // 5% discount for less than 20 hours

} else if (hoursWorked >= 21 && hoursWorked <= 30) {

this.discount = 0.1; // 10% discount for 21-30 hours

} else if (hoursWorked > 30) {

this.discount = 0.15; // 15% discount for more than 30 hours

}

}

}

Person.java

package AbcShopSystem;

public class Person {

//Q no 1

private String personID;

private String firstName;

private String surname;

private String phoneNumber;

double discount;

//Q no 3

public String getPersonID() {

return personID;

}

public void setPersonID(String personID) {

this.personID = personID;

}

public String getFirstName() {

return firstName;

}

public void setFirstName(String firstName) {

this.firstName = firstName;

}

public String getSurname() {

return surname;

}

public void setSurname(String surname) {

this.surname = surname;

}

public String getPhoneNumber() {

return phoneNumber;

}

public void setPhoneNumber(String phoneNumber) {

this.phoneNumber = phoneNumber;

}

public double getDiscount() {

return discount;

}

public void setDiscount(double discount) {

this.discount = discount;

}

@Override

public String toString() {

return "Person{" +

"personID='" + personID + '\'' +

", firstName='" + firstName + '\'' +

", surname='" + surname + '\'' +

", phoneNumber='" + phoneNumber + '\'' +

", discount=" + discount +

'}';

}

}

Supplier.java

package AbcShopSystem;

public class Supplier extends Person{

private double companyName;

private SupplierStatus supplierStatus;

private String supplier\_address;

public Supplier() {

this.companyName=123.0;

this.supplierStatus= SupplierStatus.ACTIVE;

this.supplier\_address="anamnager";

}

public Supplier(double companyName, SupplierStatus supplierStatus, String supplier\_address) {

this.companyName = companyName;

this.supplierStatus = supplierStatus;

this.supplier\_address = supplier\_address;

}

public double getCompanyName() {

return companyName;

}

public void setCompanyName(double companyName) {

this.companyName = companyName;

}

public SupplierStatus getSupplierStatus() {

return supplierStatus;

}

public void setSupplierStatus(SupplierStatus supplierStatus) {

this.supplierStatus = supplierStatus;

}

public String getSupplier\_address() {

return supplier\_address;

}

public void setSupplier\_address(String supplier\_address) {

this.supplier\_address = supplier\_address;

}

@Override

public String toString() {

return "Supplier{" +

"companyName=" + companyName +

", supplierStatus='" + supplierStatus + '\'' +

", supplier\_address='" + supplier\_address + '\'' +

'}';

}

public void setDiscount() {

switch (supplierStatus) {

case PAST:

this.discount = 0.05; // 5% discount for past suppliers

break;

case FUTURE:

this.discount = 0.1; // 10% discount for future suppliers

break;

case ACTIVE:

this.discount = 0.15; // 15% discount for active suppliers

break;

default:

this.discount = 0.0; // default discount if status is not recognized

}

}

}

SupplierStatus.java

package AbcShopSystem;

enum SupplierStatus {

PAST,

FUTURE,

ACTIVE

}

# Test Case and screenshots

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test case ID | Test case | Test Data | Expected Outcome | Actual Outcome |
| ABC-001 | To check if customer working less than 20 hours get 5% discount. | Hours Worked: 15 | The customer should get 5% discount. | Customer gets 5% discount. |
| ABC-002 | To check if customer working 21-30 hours get 10% discount. | Hours Worked: 25 | The customer should get 10% discount. | The customer gets 10% discount. |
| ABC-003 | To check if customer working more 30 hours get 15% discount. | Hours Worked: 32 | The customer should get 15% discount. | The customer gets 15% discount. |
| ABC-004 | To check if Normal type customer gets any discount. | Customer Type: Normal | Normal Type customer should not get any discount. | Normal Type customer does not get any discount. |
| ABC-005 | To check if Gold type customer gets 3% discount. | Customer Type: Gold | Gold Type customer should get 3% discount. | Gold Type customer gets 3% discount. |
| ABC-006 | To check if VIP type customer gets 5% discount. | Customer Type: VIP | VIP Type customer should get 5% discount. | VIP Type customer gets 5% discount. |
| ABC-007 | To check if Supplier with status Past Supplier gets 5% discount | Supplier Status: Past Supplier | Supplier with status Past Supplier should get 5% discount | Supplier with status Past Supplier gets 5% discount |
| ABC-008 | To check if Supplier with status Future Supplier gets 10% discount | Supplier Status: Future Supplier | Supplier with status Future Supplier should get 10% discount | Supplier with status Future Supplier gets 10% discount |
| ABC-009 | To check if Supplier with status Active Supplier gets 15% discount | Supplier Status: Active Supplier | Supplier with status Active Supplier should get 15% discount | Supplier with status Active Supplier gets 15% discount |

ScreenShot:

