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***Batch- AIML A2***

***Assignment 4***

***Github Link : https://github.com/Harsh-Ratna/Java-Programs/tree/main/java%20lab%20assignment%204***

***Code :***

import java.util.Scanner;

import java.util.Vector;

import java.util.Random;

class Card {

private int rank;

private int suit;

public Card() {

this.rank = 0;

this.suit = 0;

}

public Card(int rank, int suit) {

this.rank = rank;

this.suit = suit;

}

//constructor overloading

public int getRank() {

return rank;

} //getter method for Rank

public int getSuit() {

return suit;

}//getter method for Suit

public void printCard() {

String[] suits = {"Spades", "Hearts", "Diamonds", "Clubs"};

String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7", "8", "9", "10", "Jack", "Queen", "King"};

System.out.println(ranks[this.rank] + " of " + suits[this.suit]);

}//printing Card

public static Vector<Card> createDeck() {

Vector<Card> deck = new Vector<Card>();

for (int suit = 0; suit < 4; suit++) {

for (int rank = 0; rank < 13; rank++) {

deck.add(new Card(rank, suit));

}

}

return deck;

}

public static void printDeck(Vector<Card> deck) {

for (Card card : deck) {

card.printCard();

}

}

public boolean sameCard(Card other) {

return (this.rank == other.rank && this.suit == other.suit);

}

public int compareCard(Card other) {

if (this.rank < other.rank) {

return -1;

} else if (this.rank > other.rank) {

return 1;

} else {

if (this.suit < other.suit) {

return -1;

} else if (this.suit > other.suit) {

return 1;

} else {

return 0;

}

}

}

public static void sortDeck(Vector<Card> deck) {

deck.sort(Card::compareCard);

}

public static void findCard(Vector<Card> deck, Card card) {

for (int i = 0; i < deck.size(); i++) {

if (deck.get(i).sameCard(card)) {

System.out.println("Card found at index " + i);

return;

}

}

System.out.println("Card not found");

}

public static void dealCards(Vector<Card> deck, int numCards) {

Random rand = new Random();

for (int i = 0; i < numCards; i++) {

int index = rand.nextInt(deck.size());

Card card = deck.get(index);

card.printCard();

deck.remove(index);

}

}

}

import java.util.Scanner;

import java.util.Vector;

public class CardGame {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

Vector<Card> deck = Card.createDeck();

menuloop:

while (true) {

System.out.println("\n--- Menu ---");

System.out.println("1. Print the deck");

System.out.println("2. Check if two cards are the same");

System.out.println("3. Sort the deck");

System.out.println("4. Find a card");

System.out.println("5. Deal cards");

System.out.println("6. Exit");

System.out.print("Enter your choice (1-6): ");

int choice = input.nextInt();

//making a switch case for menu

switch(choice){

case(1):

System.out.println("\n--- Deck ---");

Card.printDeck(deck);

break;

case(2):

System.out.println("\nEnter the first card:");

Card card1 = readCard(input);

System.out.println("Enter the second card:");

Card card2 = readCard(input);

if (card1.sameCard(card2)) {

System.out.println("The two cards are the same");

} else

System.out.println("The two cards are different");

break;

case(3):

Card.sortDeck(deck);

System.out.println("\n--- Sorted deck ---");

Card.printDeck(deck);

break;

case(4):

System.out.println("\nEnter a card to search for:");

Card card = readCard(input);

Card.findCard(deck, card);

break;

case(5):

System.out.println("\nDealing cards...");

Card.dealCards(deck, 5);

break;

case(6):

System.out.println("Thank you for playing!");

break menuloop;

}

}

}

public static Card readCard(Scanner input) {

System.out.print("Enter rank (0-12): ");

int rank = input.nextInt();

System.out.print("Enter suit (0-3): ");

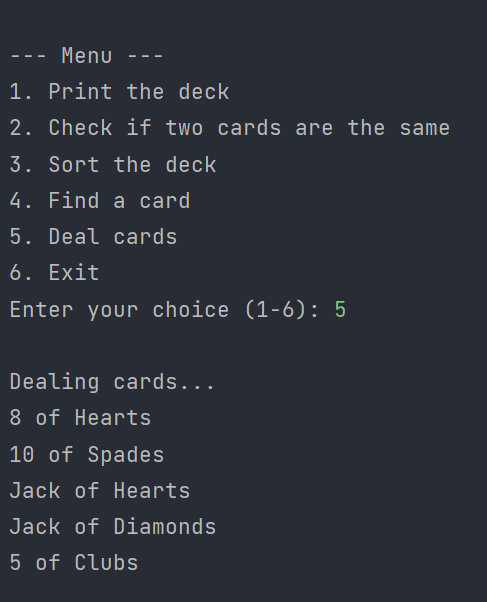
int suit = input.nextInt();

return new Card(rank, suit);

}

}

***Output :***

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Text

Description automatically generated

Text

Description automatically generated