Online Shopping Checkout

Name- Ridhi

Section-C

ABSTRACTION

Abstraction is A fundamental concept of computational thinking that involves reducing complexity by focusing on the main idea ignoring specific details. Abstraction in shopping cart plays A huge role there Are various essential elements And unnecessary details which takes place because of this process As it focuses on relevant details. it basically helps us focus only on what the checkout process must do not how it looks or what tools Are used to build it.

ESSENTIAL ELEMENTS IN ONLINE SHOPPING CHECKOUT BY ABSTRACTION:-

1.User adds selected products to the shopping cart

2.The internal system of the app calculates the total cost including the actual price, delivery charges and inclusive gst taxes.

3.User adds shipping address and contact information

4.Payment details are entered and transaction is processed.

5.The system confirms the order and generates the payment receipt after the order is confirmed.

UNNECESSARY DETAILS (Details which are ignored while shopping)

1. . Page design, color schemes, animations, pictures are often ignored by customers on the checkout page.

2. Specific technologies and programming languages used in making the website involving the backend process.

3.Advertisement banners and popups during checkout

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DECOMPOSTION

it is the main part of computational thinking which Allows each part to be tackled individually And then integrated to form complete solutions. it breaks complex problems into simpler , smaller And manageable parts so that each can be designed And solved separately. the main Approach of decomposition is to divide And conquer, it helps manage large tasks or systems. decomposition helps in managing complexity by dividing the checkout system into smaller modules that can be developed And tested individually.

The online shopping checkout system can be divided into:-

1. CART MANAGEMENT

Add remove or update products in the cart.

Display product details and their quantity.

2. PRICE CALCULATION

Calculate the subtotal taxes and final total including every cost.

Update total price automatically if new items added.

3. USER INFORMATION

Collect shipping address and contact number.

4. PAYMENT PROCESSING

Choose payment method(credit/debit, UPI, wallet, cash on delivery, etc.)

Verify and process payment securely

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PATTERN RECOGNITION

The process of identifying similarities,trends or regularities in data , help simplify complex problems, crucial step before creating algorithms. It helps in predicting problems outcomes and reuse solutions. It is the process of clarifying patterns, regularities and structures In data by comparing them to known models, rules.

In the case of Online Shopping Checkout, several patterns are similar to other online systems.

Common Patterns Identified:-

Login/Authentication Pattern – Seen in most e-commerce and online services for secure access.

Form-Filling Pattern – Collecting user details like address or contact info is similar to registration or booking systems.

Transaction Pattern – Payment verification steps are common in ticket booking or bill payment portals.

Cart Pattern – Adding or removing items is similar to grocery, food delivery, or travel booking platforms.

Confirmation Pattern – Sending receipts or confirmation messages is seen in nearly every online transaction

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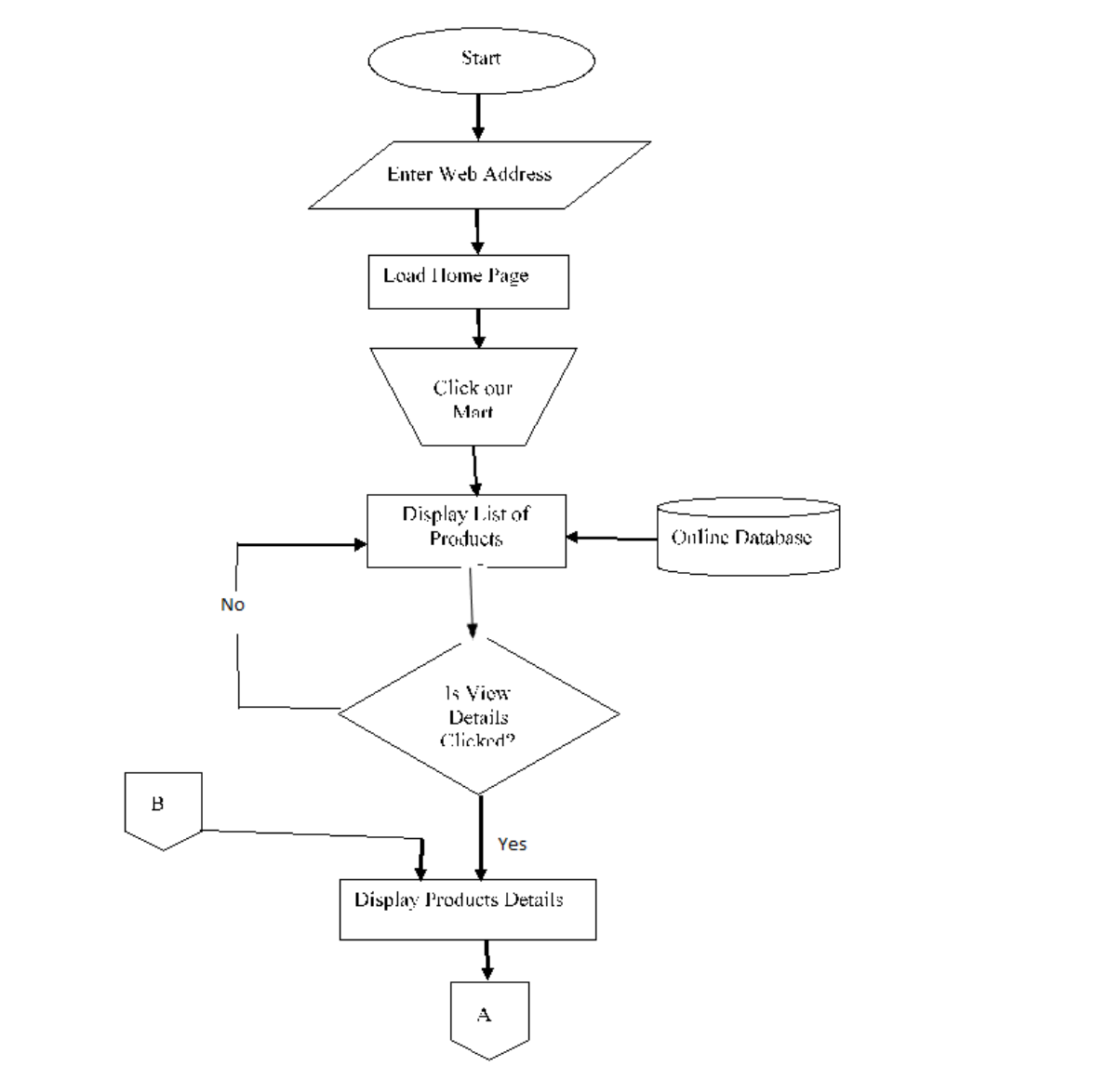

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PSEUDOCODE

```
START
 DISPLAY "Welcome to Online Shopping Checkout"
 INPUT total_amount
 DISPLAY "Do you have a discount coupon? (Yes/No)"
 INPUT choice
 IF choice = "Yes" THEN
 INPUT discount_percentage
 total_amount = total_amount - (total_amount * discount_percentage
/100)
 END IF
 DISPLAY "Select Payment Method: 1. Card 2. UPI 3. Cash on Delivery"
 INPUT payment_option
 IF payment_option = 1 THEN
 DISPLAY "Processing Card Payment"
 ELSE IF payment_option = 2 THEN
 DISPLAY "Processing UPI Payment"
 ELSE
 DISPLAY "Cash on Delivery Selected"
 END IF
 DISPLAY "Order Confirmed. Thank you for shopping!"
 END
```

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Python

```
IF cart is not empty THEN
DISPLAY "Enter payment method (Card / UPI): "
CALCULATE total_price
DISPLAY "Total Amount: ", total_price
IF payment successful THEN
DISPLAY "Order Confirmed"
ELSE
DISPLAY "Payment Failed"
END IF
PYTHON PROGRAMcart = {"Shoes": 1200, "T-shirt": 700, "Jeans": 1500}
if not cart:
print("Your cart is empty.")
else:
total = sum(cart.values())
print("Items in your cart:")
for item, price in cart.items():
print("- " + item + ": ₹" + str(price))
print("Total Amount: ₹" + str(total))
payment = input("Enter payment method (Card / UPI): ")
if payment == "card" or payment == "upi":
print("Payment Successful ")
print("Order Confirmed! ")
else:
```

OUTPUT

Items in your cartShoes- 1200

Tshirt-700

Jeans- 1500

Total amount= 3400

Enter payment method(card/upi): upi

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print(“Payment failed invalid method”)

INTRODUCTION

The chosen program is covering an online shopping checkout system. With the rise of e commerce in

daily life and our generation online shopping platforms require a smooth checkout process that

calculates total prices of goods and handles payment in a particular ordered manner. This project

displays a simplified version of such a system using various flowcharts , pseudocodes, python program

of a block which enable user to view cart items , calculate totals and process payments efficiently.

ANALYSIS

Abstraction:

Focused on essential features: cart items, total calculation, payment handling.

Ignored less critical details like delivery address, discounts, or inventory.

Decomposition:

Cart Management: Store items and prices.

Total Calculation: Sum item prices and optionally include tax.

Payment Processing: Validate payment method and confirm order.

Pattern Recognition:

Repeated steps like iterating through items to calculate totals.

Checking input against valid payment methods.

DESIGN

AS REPRESENTED IN FLOWCHART ABOVE

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AND WRITTEN IN PSEUDOCODE

IMPLEMENTATION

THIS SECTION SHOWS THE ACTUAL PYTHON CODE AND HOW IT WORKS , THE PROGRAM FIRST CHECKS IF THE CART IS EMPTY. IT

DISPLAYS ALL ITEMS AND THEIR PRICES USING A LOOP THEN WE CALCULATE THE TOTAL COST USING SUM() FUNCTION , AFTER IT

USER ENTERS THE PAYMENT METHOD , FINALLY PROGRAM CHECKS THE VALIDITY AND SHOWS PAYMENT SUCCESS OR FAILURE

REFLECTION

During this project, I learned how to design and implement a simple Python program that simulates an

online shopping checkout system. The process helped me understand the importance of breaking down a

problem into smaller steps such as checking the cart, calculating totals, and validating payment options

using various methods like abstraction and decomposition.

challenges faced:

1.Ensuring input handling works correctly for various cases (e.g., uppercase, lowercase).

2.Keeping the program simple while demonstrating key programming concepts.

insights gained

1.Learned how to use Python loops, conditionals, and input handling effectively.

2.Understood how abstraction and decomposition help simplify complex problems.

3.Gained confidence in writing clean and well-commented Python code.

possible improvements

1.Add options to add or remove items from the cart.

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2.Include discounts, tax calculations, or promo codes.

3.Store order history or generate a bill using file handling.