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PF LAB 4

TASK 1

Create a program that categorizes a number based on its rang. Prompt the user to enter a number. Use nested if-else statements to categorize the number:

* + If the number is positive:
    - If the number is greater than 100, print "The number is large."
    - If the number is less than or equal to 100, print "The number is small."
  + If the number is negative:
    - If the number is less than -100, print "The number is very small."
    - If the number is greater than or equal to -100, print "The number is small and negative."
  + If the number is zero, print "The number is zero."

#include <iostream>

using namespace std;

int main() {

int num;

cout << "Enter a number: ";

cin >> num;

if (num > 0) {

if (num > 100)

cout << "The number is large"<<endl;

else

cout << "The number is small." <<endl;

} else if (num < 0) {

if (num < -100)

cout << "The number is very small." <<endl;

else

cout << "The number is small and negative." <<endl;

} else {

cout << "The number is zero." <<endl;

}

return 0;

}

**Task 2:**

Write a program that classifies a person into an age group. Prompt the user to enter their age. Use nested if statements to classify the age:

* + If the age is less than 0, print "Invalid age."
  + If the age is between 0 and 12, print "Child."
  + If the age is between 13 and 19:
    - If the age is exactly 13, print "Just a Teen."
    - Otherwise, print "Teenager."
  + If the age is between 20 and 60, print "Adult."
  + If the age is above 60, print "Senior Citizen."

#include <iostream>

using namespace std;

int main() {

int age;

cout << "Enter your age: ";

cin >> age;

if (age < 0) {

cout << "Invalid age."<<endl;

} else if (age <= 12) {

cout << "Child." <<endl;

} else if (age >= 13 && age <= 19) {

if (age == 13)

cout << "Just a Teen." <<endl;

else

cout << "Teenager." <<endl;

} else if (age >= 20 && age <= 60) {

cout << "Adult." <<endl;

} else {

cout << "Senior Citizen." <<endl;

}

return 0;}

**Task 3:**

Write a C++ program to create a Calculator using the switch Statement using switch case.

#include <iostream>

using namespace std;

int main() {

char op;

double num1, num2;

cout << "Enter operator (+, -, \*, /): ";

cin >> op;

cout << "Enter two numbers: ";

cin >> num1 >> num2;

switch (op) {

case '+':

cout << "Result: " << num1 + num2 << endl;

break;

case '-':

cout << "Result: " << num1 - num2 << endl;

break;

case '\*':

cout << "Result: " << num1 \* num2 << endl;

break;

case '/':

if (num2 != 0)

cout << "Result: " << num1 / num2 << endl;

else

cout << "Error! Division by zero.\n";

break;

default:

cout << "Invalid operator!\n";

}

return 0;

}

**Task 4:**

Using Switch statement, write a program that displays the following menu for the bank operations available to take services from the customer:

• D= Deposit  
• W= Withdraw  
• T= Transfer  
  
The program inputs the type of service and amount. It finally displays the amount to be transfer/deposit/transfer after applying charges, total remaining balance of customer according to the following criteria:  
• Deposit = 0.5% charges of deposited amount  
• Withdraw = 1.5% charges of withdraw amount  
• Transfer = 2.5% charges of transfer amount

#include <iostream>

using namespace std;

int main() {

char choice;

double balance, amount, charges, newBalance;

// Initialize the balance

cout << "Enter your initial balance: $";

cin >> balance;

// Display the menu

cout << "Menu:\n";

cout << "D = Deposit\n";

cout << "W = Withdraw\n";

cout << "T = Transfer\n";

cout << "Enter your choice: ";

cin >> choice;

switch (choice) {

case 'D':

case 'd':

cout << "Enter the amount to deposit: $";

cin >> amount;

charges = 0.005 \* amount;

newBalance = balance + amount - charges;

break;

case 'W':

case 'w':

cout << "Enter the amount to withdraw: $";

cin >> amount;

charges = 0.015 \* amount;

newBalance = balance - amount - charges;

break;

case 'T':

case 't':

cout << "Enter the amount to transfer: $";

cin >> amount;

charges = 0.025 \* amount;

newBalance = balance - amount - charges;

break;

default:

cout << "Invalid choice." << endl;

return 1;

}

// Display the results

cout << "Charges: $" << charges << endl;

cout << "New Balance: $" << newBalance << endl;

return 0;

}

**Task 5:**

Write a program that displays a message based on the day of the week.

1. Prompt the user to enter a number (1 for Monday, 2 for Tuesday, ..., 7 for Sunday).
2. Use a switch statement to display a message:
   * For Monday "Start of the workweek."
   * For Tuesday "It's Tuesday, stay productive."
   * For Wednesday "Midweek motivation!"
   * For Thursday print "Almost the weekend."
   * for Friday “TGIF!"
   * for Saturday "Relax, it's Saturday."
   * For Sunday print "Enjoy your Sunday!"
   * When wrong selection "Invalid day selection."

#include <iostream>

using namespace std;

int main() {

int choice;

// Display the menu

cout << "\n===== Day Message Menu =====\n";

cout << "1. Monday\n";

cout << "2. Tuesday\n";

cout << "3. Wednesday\n";

cout << "4. Thursday\n";

cout << "5. Friday\n";

cout << "6. Saturday\n";

cout << "7. Sunday\n";

cout << "8. Exit\n";

cout << "Select an option (1-8): ";

cin >> choice;

switch (choice) {

case 1:

cout << "Start of the workweek.\n";

break;

case 2:

cout << "It's Tuesday, stay productive.\n";

break;

case 3:

cout << "Midweek motivation!\n";

break;

case 4:

cout << "Almost the weekend.\n";

break;

case 5:

cout << "TGIF!\n";

break;

case 6:

cout << "Relax, it's Saturday.\n";

break;

case 7:

cout << "Enjoy your Sunday!\n";

break;

case 8:

cout << "Exiting the program. Goodbye!\n";

break;

default:

cout << "Invalid selection. Please run the program again and choose a valid option.\n";

}

return 0;

}

**Task 6:**

Create a program to assign letter grades based on student scores.

1. Prompt the user to input their exam score (out of 100).
2. Use nested if to assign a letter grade:
   * If the score is 90 or above, print "Grade: A"
   * If the score is between 80 and 89:
     + If the score is greater than or equal to 85, print "Grade: B+"
     + Otherwise, print "Grade: B"
   * If the score is between 70 and 79:
     + If the score is greater than or equal to 75, print "Grade: C+"
     + Otherwise, print "Grade: C"
   * If the score is between 60 and 69, print "Grade: D"
   * If the score is below 60, print "Grade: F"

#include <iostream>

using namespace std;

int main() {

int score;

cout << "Enter your exam score (0-100): ";

cin >> score;

if (score >= 90) {

cout << "Grade: A\n";

} else if (score >= 80) {

if (score >= 85)

cout << "Grade: B+\n";

else

cout << "Grade: B\n";

} else if (score >= 70) {

if (score >= 75)

cout << "Grade: C+\n";

else

cout << "Grade: C\n";

} else if (score >= 60) {

cout << "Grade: D\n";

} else {

cout << "Grade: F\n";

}

return 0;