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// Lab Exercise 3
// set 1
/* PRAVINRAJ A/L SIAVABTHI*/
/* A23CS0171*/

# include <iostream>
# include <cstring>
using namespace std;

// constants with the associated values
//#define WASH 10.0  the price of WASH service charge
//define VACUUM 7.0 // the price of VACUUM service charge
//#define POLISH 15.0 // the price of POLISH service charge

// Task 6: List all function prototypes.

// function declarations

void setType(string &type);
void setPackage(int &wspkg);
float wash(string &type);
float vacuum(string &type);
float polish(string &type);

// Task 7: Call the functions from Task 1 until Task 5.
// main function

int main() {
   string type;
   setType(type);
   int wspkg;
```

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float charge = 0.0; // Initialize the total charge
setPackage(wspkg);
  switch (wspkg) {
   case 1:charge += wash(type);
      break;
   case 2:charge += vacuum(type);
      break;
   case 3:charge += polish(type);
      break;
   default:cout << "Invalid package number. Exiting program." << endl;}


   cout << "\nTotal service charge is " << charge << endl;


   return 0;

}

// Task 1: Function to set car type
void setType(string &type) {
   do {
cout << "Enter a car type ( sedan or mpv): ";
      cin >> type;
   } while (type != "sedan" && type != "mpv");
}
```

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//// Task 2: Function to set wash service package
void setPackage(int &wspkg) {
cout <<"1. Basic " << endl;
cout <<"2. Deluxe" << endl;
cout <<"3. Premium" << endl;



do{
// wash =10, vacumm=7, polish 15.0
cout << "\nChoose wash service package(1/2/3) : ";
cin >> wspkg;

}while (wspkg <1 || wspkg >3 );
}

// Task 3: Function to determine exterior wash service charge based on car type
float wash(string &type) {
float charge;
if ( type == "mpv")
  charge = 10 *1.2;
else
  charge = 10;
cout << "\nWash service charge is " << charge<< endl;
return charge;
}

// Task 4: Function to determine interior vacuum service charge based on car type
float vacuum(string &type) {
float charge;
if (type == "mpv")
  charge = 7 * 1.05;
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else
  charge = 7;
cout <<"\nVacumm service charge is " << charge <<endl;
return charge;
}
// Task 5: Function to determine exterior polish service charge based on car type
float polish(string &type) {
float charge;
if (type =="mpv")
  charge = 15*1.2;
else
  charge = 15;
cout << "\nPolish service charge is " << charge <<endl;
return charge;
}
```

```
//set 2
#include <iostream>
using namespace std;

const int MAX_OPERATIONS = 100;
int operands[MAX_OPERATIONS];
int results[MAX_OPERATIONS];

int multiplyUsingAddition(int a, int b) {
   int result = 0;
   for (int i = 0; i < b; ++i) {
      result += a;
   }
   return result;
}

// Function displayMainMenu
void displayMainMenu() {
   cout << "\n<<<<<Main Menu>>>>>\n";
   cout << "============================\n";
   cout << "1. Perform Multiplication\n";
   cout << "2. Display Results\n";
   cout << "3. Quit\n";
}

// Function performmultiplication
void performMultiplication(int& operationCount) {
   if (operationCount < MAX_OPERATIONS) {
      cout << "Enter the number of operands for multiplication: ";
      cin >> operationCount;
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        int finalResult = 1;
        for (int j = 0; j < operationCount; ++j) {
            int a;
            cout << "Enter operand " << (j + 1) << ": ";
            cin >> a;
            finalResult *= a;

            operands[j] = a;
            results[j] = finalResult;
        }

        cout << "Multiplication performed successfully!\n";
    } else {
        cout << "Maximum number of operations reached. Cannot perform more multiplications.\n";
    }
}

// Function displayresults
void displayResults(int operationCount) {
    cout << "\nResults of Mathematical Operations:\n";
    cout << "=======================================\n";
    for (int i = 0; i < operationCount; ++i) {
        cout << "Operation " << i + 1 << ": " << results[i] << " (Result after multiplying with " <<
operands[i] << ")\n";
    }
}

int main() {
    int operationCount = 0;
    int choice;
```

```
    do {
        displayMainMenu();
        cout << "Enter your choice: ";
        cin >> choice;

        switch (choice) {
            case 1:
                performMultiplication(operationCount);
                break;
            case 2:
                displayResults(operationCount);
                break;
            case 3:
                cout << "Exiting the program. Goodbye!\n";
                break;
            default:
                cout << "Invalid choice. Please enter a number between 1 and 3.\n";
        }

    } while (choice != 3);

    return 0;
}
```