КОМПЬЮТЕРНАЯ АКАДЕМИЯ «ШАГ»

**КОМПЬЮТЕРНАЯ АКАДЕМИЯ КОМПЬЮТЕРНАЯ АКАДЕМИЯ**



# Лабораторная работа по предмету

**«Язык программирования С»**

**Тема: «Логические операторы, операторы ветвлений и конструкция множественного выбора switch»**

**Задачи:**

1. Необходимо написать программу, которая принимает от пользователя номер месяца и сообщает время года, к которому этот месяц относится. Задача должна быть решена с использованием конструкции switch

Project 2:

#include "iostream"

using namespace std;

int main ()

{

int n;

cout << "Input mounth number ";

cin >> n;

switch (n)

{

case 1:

case 2:

case 12: cout << "Winter" << endl; break;

case 3:

case 4:

case 5: cout << "Spring" << endl; break;

case 6:

case 7:

case 8: cout << "Summer" << endl; break;

case 9:

case 10:

case 11: cout << "Authem" << endl; break;

default: cout << "It's not number";

}

system ("pause");

return 0;

}

1. Написать программу, которая принимает от пользователя целое число в диапазоне от 0 до 100000 и выводит это число по цифрам через пробел. Решение задачи реализовать с помощью конструкции switch

Project 4:

#include "iostream"

using namespace std;

int main()

{

int n, a, b, c, d, e;

cout << "Input number (1 to 100000) ";

cin >> n;

if (n > 100000) cout << "Error" << endl;

else if (n < 0) cout << "Error" << endl;

else {

e = n / 10000 - (n / 100000 \* 10);

d = n / 1000 - (n / 10000 \* 10);

c = n / 100 - (n / 1000 \* 10);

b = n / 10 - (n / 100 \* 10);

a = n - (n / 10 \* 10);

switch (e)

{

case 0: if (d > 0) (cout << " " << d << " " << c << " " << b << " " << a << endl); else if (c > 0) (cout << " " << c << " " << b << " " << a << " " << endl); else if (b > 0) (cout << " " << b << " " << a << " " << endl); else if (a > 0) (cout << " " << a << endl); else cout << "Error" << endl; break;

case 1: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 2: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 3: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 4: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 5: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 6: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 7: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 8: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

case 9: cout << e << " " << d << " " << c << " " << b << " " << a << " " << endl; break;

}

}

system("pause");

return 0;

}

1. Программа принимает от пользователя трехзначное целое число. Программа должна сообщить, состоит ли это число из одинаковых цифр. Если введенное число не трехзначное – сообщить об ошибке

Project 5:

#include "iostream"

using namespace std;

int main()

{

int n, a, b, c;

cout << "Input mounth number ";

cin >> n;

a = n / 100;

b = (n / 10) - (n / 100 \* 10);

c = n - (n / 10 \* 10);

switch (a)

{

case 1: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 2: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 3: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 4: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 5: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 6: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 7: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 8: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

case 9: (a == b) && (c == a) ? cout << "all numbers are the same " << endl : cout << a << " " << b << " " << c << endl; break;

default: cout << "Error " << endl;

}

system("pause");

return 0;

}

1. Написать программу, которая принимает от пользователя трехзначное число и определяет, является ли сумма цифр этого числа двузначным числом. Если пользователь ввел не трехзначное число – сообщение об ошибке.

Project 6:

#include "iostream"

using namespace std;

int main()

{

int n, a, b, c, s;

cout << "Input mounth number ";

cin >> n;

a = n / 100;

b = (n / 10) - (n / 100 \* 10);

c = n - (n / 10 \* 10);

switch (a)

{

case 1: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 2: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 3: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 4: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 5: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 6: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 7: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 8: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

case 9: (a + b + c) >= 10 ? cout << "Sum of numbers is a two-digit number= " << a + b + c << endl : cout << "sum of numbers is not a two-digit number= " << a + b + c << endl; break;

default: cout << "It's not number " << endl;

}

system("pause");

return 0;

}

1. Написать программу, которая с использованием конструкции switch определяет, каким днем (Рабочий день, Суббота, Воскресенье) является введенный номер дня недели.

Project 7:

#include "iostream"

using namespace std;

int main()

{

int n;

cout << "Input weekday number ";

cin >> n;

switch (n)

{

case 1: cout << "Workday" << endl; break;

case 2: cout << "Workday" << endl; break;

case 3: cout << "Workday" << endl; break;

case 4: cout << "Workday" << endl; break;

case 5: cout << "Workday" << endl; break;

case 6: cout << "Saturday" << endl; break;

case 7: cout << "Sunday" << endl; break;

default: cout << "It's not weekday number" << endl;

}

system("pause");

return 0;

}

1. Пользователь вводит с клавиатуры две скорости – одну в километрах/час, другую – в метрах/секунду. Программа должна определить – какая из скоростей больше.

Project 8:

#include "iostream"

using namespace std;

int main()

{

int k;

float n, a, b;

cout << "Input speed (km/h) ";

cin >> a;

cout << "Input speed (m/s) ";

cin >> b;

n = a / (b \* 3.6);

(n > 1) ? k = 2 : (n < 1 ? k = 0 : k = 1);

switch (k)

{

case 0: cout << b << "m/s > " << a << "km/h" << endl; break;

case 1: cout << a << "km/h = " << b << "m/s" << endl; break;

case 2: cout << a << "km/h > " << b << "m/s" << endl; break;

}

system("pause");

return 0;

}