

ИНФОРМАТИКА

предмет

ШИФР 61-11-ЦКР-2

Задача 1.

Бланк №1.

Пузырьковая диаграмма.

скорость работы программы	число программ
20	50
40	40
60	450
90	560
100	450

560 делов

Задача 5.

```
//C++ 20
#include <iostream>
#include <algorithm>
#include <vector>
#include <cstdint>
#include <sstream>
int main() {
    size_t line_size, line_count;
    std::cin >> line_count >> line_size;
    std::vector<int64_t> line(line_size);
    std::stringstream out;
    for (size_t i = 0; i < line_count; ++i) {
        for (size_t j = 0; j < line_size; ++j) {
            std::cin >> line[j];
        }
        std::sort(line.begin(), line.end());
        for (size_t j = 0; j < line_size; ++j) {
            out << line[j] << (j+1 == line_size ? '\n' : ' ');
        }
    }
    std::cout << out.str();
    return 0;
}
```

100

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ШИФР 61-11-ЦНФ-2

Задача 6.

Таблица №2.

```
//C++ 20
#include <iostream>
#include <map>
#include <string>
#include <set>
#include <iomanip>
std::map<std::string, size_t> day {
    {"ПОНЕДЕЛЬНИК", 0},
    {"ВТОРНИК", 1},
    {"СРЕДА", 2},
    {"ЧЕТВЕРГ", 3},
    {"ПЯТНИЦА", 4},
    {"СУББОТА", 5},
    {"ВОСКРЕСЕНЬЕ", 6}
};
```

```
struct DayInfo {
    size_t day_id;
    uint64_t income;
    std::string type;
    bool operator< (const DayInfo & d) const {
        return day_id < d.day_id;
    }
};
```

```
DayInfo parse (const std::string & str) {
    size_t day_end = str.find(' ');
    size_t income_beg = day_end;
    while (str[income_beg] == ' ') ++income_beg;
    size_t income_end = str.find(' ', income_beg);
    size_t type_beg = income_end;
    while (str[type_beg] == ' ') ++type_beg;

    DayInfo info;
    info.day_id = day.at(str.substr(0, day_end));
    info.income = std::stoull(str.substr(income_beg, income_end - income_beg));
    info.type = str.substr(type_beg);
    return info;
}
```

```
int main () {
    std::setlocale (LC_ALL, "RU-ru");
    std::system ("chcp 1251");
```

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175

ШИФР 61-11-1111-2

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Тренировка №3

```
std::string first_day, last_day;
std::getline(std::cin, first_day);
std::getline(std::cin, last_day);
size_t first_i = first_day.at(0), last_i = last_day.at(0);
DayInfo info[7];
std::string str;
for (int i = 0; i < 7; ++i) {
    std::getline(std::cin, str);
    DayInfo tmp = parse(str);
    info[tmp.day_id] = tmp;
}
auto satisfy = [first_i, last_i](size_t day_id) -> bool {
    if (first_i <= last_i) {
        return (day_id >= first_i) && (day_id <= last_i);
    } else {
        return (day_id <= first_i) && (day_id >= last_i);
    }
};
std::set<DayInfo> filtered;
for (size_t i = 0; i < 7; ++i) {
    if (satisfy(i))
        filtered.insert(info[i]);
}
double average_income = .0;
for (const auto & i : filtered) {
    average_income += i.income;
}
average_income /= filtered.size();
uint64_t min_income = VINT64_MAX, max_income = 0, max_income_day;
for (const auto & i : filtered) {
    if (i.income > max_income) {
        max_income = i.income;
        max_income_day = i.day_id;
    }
    if (i.income < min_income) {
        min_income = i.income;
    }
}
```

предмет

ШИФР 61-11-6611-2

Бланк 14

```
std::string day_str[] {
    "ПОНЕДЕЛЬНИК",
    "ВТОРНИК",
    "СРЕДА",
    "ЧЕТВЕРГ",
    "ПЯТНИЦА",
    "СУББОТА",
    "ВОСКРЕСЕНЬЕ"
};
std::cout << "СРЕДНИЙ ДОХОД: " << std::fixed << std::setprecision(2) << average_income
    << "\nСАМЫЙ ВЫСОКИЙ ДОХОД: " << max_income
    << "\nСАМЫЙ НИЗКИЙ ДОХОД: " << min_income
    << "\nДЕНЬ С НАИБОЛЬШИМ ДОХОДОМ ОТ ПРОДАЖ - "
    << day_str[max_income_day] << std::endl;
}
```

11C++20

Задача 7.

```
#include <iostream>
#include <cstdint>
#include <string>
#include <vector>
template<int MMOD>
int mmod(int number) {
    return (MMOD + (number % MMOD)) % MMOD;
}
int decypher(int cypher_text, int key, int offset) {
    const int const_table[] = {0, 1, 4, 5, 2, 3, 6};
    int p = mmod<7>((cypher_text - mmod<7>(offset)) * const_table[mmod<7>(key)]);
    return p;
}
int main() {
    std::string C;
    std::getline(std::cin, C);
    std::vector<int> cypher_text;
    for(size_t i=0; i<C.size(); ++i) {
        if(std::isdigit(C[i]))
            cypher_text.push_back(C[i] - '0');
    }
}
```

155

предмет

ШИФР 61-11-Шифр-2

Тема №5

```
int key, offset;  
while (!std::isdigit(std::cin.peek())) std::cin.ignore();  
std::cin >> key;  
while (!std::isdigit(std::cin.peek())) std::cin.ignore();  
std::cin >> offset;  
  
std::cout << "R = \n";  
for (size_t i=0; i < cypher_text.size(); ++i) {  
    std::cout << decypher(cypher_text[i], key, offset)  
        << (i+1 == cypher_text.size() ? '\n' : ' ');  
}  
return 0;
```

}