C++ Programming
Functions Practice

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Practice: Employee Program (v2)

- Help our factory in managing his employees. Create a program that does the following:
  - Display the following choices:
    - Enter your choice:
    - 1) Add new employee
    - 2) Print all employees
    - 3) Delete by age
    - 4) Update Salary by name
  - You will keep the program running forever. Display the choices and user input from 1 to 4

Practice: Employee Program (v2)

- For choice 1: Allow the manager to enter information of an employee
  - Ask user to input: Name, Age, Salary and Gender letter
  - Add the information to your database
- For choice 2: Print all employees. Line per employee
- For choice 3: User enter to values, start age and end age
  - Find all employees with: start_age <= age <= end_age and remove them
- For choice 4: User enter name, then salary
  - Find the employee and update his salary
- See screenshots

Practice: Employee Program (v2)

```
Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
1
Enter name: mostafa
Enter age: 33
Enter salary: 12345
Enter gender (M/F): M

Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
1
Enter name: Mona
Enter age: 28
Enter salary: 3333
Enter gender (M/F): F

Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
2
****************************
mostafa 33 12345 M
Mona 28 3333 F
```

```
Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
4
Enter the name and salary mostafa 505

Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
2
****************************
mostafa 33 505 M
Mona 28 3333 F
```

```
Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
3
Enter start and end age
20 30

Enter your choice:
1) Add new employee
2) Print all employees
3) Delete by age
4) Update Salary by name
2
****************************
mostafa 33 505 M
```

Practice: Employee Program (v2)

```
85
86 void employee_system() {
87     while (true) {
88         int choice = menu();
89
90         if (choice == 1)
91             read_employee();
92         else if (choice == 2)
93             print_employees();
94         else if (choice == 3)
95             delete_by_age();
96         else if (choice == 4)
97             update_salary_by_name();
98         else
99             break;
100    }
101 }
102
103 int main() {
104     //freopen("c.in", "rt", stdin);
105     employee_system();
106     return 0;
107 }
108
```

Practice: Employee Program (v2)

```
 4  // Global variables
 5  const int MAX = 10000;
 6
 7  string names[MAX];
 8  int ages[MAX];
 9  double salaries[MAX];
10  char genders[MAX];
11  int added = 0;  // Number of employees
12
```

- Local variable
  - Defined inside function
  - Such as main or yours
- Global variable
  - Defined outside functions
  - Simpler, but not good professionally

Practice: Employee Program (v2)

```cpp
int menu() {
    int choice = -1;
    while (choice == -1) {
        cout << "\nEnter your choice:\n";
        cout << "1) Add new employee\n";
        cout << "2) Print all employees\n";
        cout << "3) Delete by age\n";
        cout << "4) Update Salary by name\n";
        cout << "5) Exit\n";

        cin >> choice;

        if (!(1 <= choice && choice <= 5)) {
            cout << "Invalid choice. Try again\n";
            choice = -1;    // loop keep working
        }
    }
    return choice;
}
```

Practice: Employee Program (v2)

```cpp
32
33⊖ void read_employee() {
34      cout << "Enter name: ";
35      cin >> names[added];
36
37      cout << "Enter age: ";
38      cin >> ages[added];
39
40      cout << "Enter salary: ";
41      cin >> salaries[added];
42
43      cout << "Enter gender (M/F): ";
44      cin >> genders[added];
45      ++added;
46  }
47
48⊖ void print_employees() {
49      cout << "*****************************\n";
50      for (int i = 0; i < added; ++i) {
51          if (ages[i] != -1)
52              cout << names[i] << " " << ages[i] << " "
53              << salaries[i] << " "
54                      << genders[i] << "\n";
55      }
56  }
57
```

Practice: Employee Program (v2)

```cpp
void delete_by_age() {
    cout << "Enter start and end age: ";
    int start, end;
    cin >> start >> end;

    for (int i = 0; i < added; ++i) {
        if (start <= ages[i] && ages[i] <= end)
            ages[i] = -1;
    }
}

void update_salary_by_name() {
    cout << "Enter the name and salary: ";
    string name;
    int salary;
    cin >> name >> salary;

    bool is_found = false;
    for (int i = 0; i < added; ++i) {
        if (ages[i] != -1 && names[i] == name) {
            is_found = true;
            salaries[i] = salary;
            break;
        }
    }
    if (!is_found)
        cout << "No employee with this name!\n";
}
```

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."