# Conditional Statements, Nested Conditional statements - Exercise

Tasks for exercise in class and for homework to the course  ["Programming Fundamentals and Unit Testing" @ SoftUni.](https://softuni.bg/trainings/4256/programming-fundamentals-and-unit-testing-september-2023)

**Test** your solution in **the Judge system**: [https://judge.softuni.org/Contests/4345](https://judge.softuni.org/Contests/4345/First-Steps-in-Programming-Conditional-Statements-Nested-Conditional-Statements-Exercise)

## Cinema

In a cinema hall, the chairs are arranged in a rectangular shape with r-rows and c-columns. There are three types of screenings with tickets at different prices:

* Premiere – premiere screening, at a price of 12.00 leva.
* Normal – standard screening, at a price of 7.50 leva.
* Discount – screening for children and students at a reduced price of 5.00 leva.

Write a program that reads the **type of screening (string)**, the **number of rows** andthe **number of columns** in the hall **(integers)** entered by the user, and **calculates the total ticket revenue** at a full hall. The result should be presented in a format similar to the examples provided, showing **2 decimal places**.

### Example Input/Output

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| Premiere  10  12 | 1440.00 leva | Normal  21  13 | 2047.50 leva | Discount  12  30 | 1800.00 leva |

\* **Hint:** To ensure the result is displayed with **precisely two decimal places**, use the following syntax: Console.WriteLine("{0:f2} leva", income).

### Guidelines

1. Read the input from the console.



1. Create an income variableof type "double" with an initial value of **zero**.



1. Make a series of checks, assigning the corresponding price to the variable "income" for each type of screening ("Premiere, Normal, Discount"), and finally print the result.



## Summer Clothing

Summer weather can be quite unpredictable, and Victor needs your assistance. Write a program that, **based on the time of day** and the **temperature**, recommends to Victor **what clothes to wear**. Your friend has **different plans for each stage of the day** that require varied clothing, as indicated in the table.

**Two lines are read from the console:**

* **Temperature - an integer in the range [10... 42]**
* **Text, time of day - with possibilities - "Morning", "Afternoon", "Evening"**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time of day / degrees** | Morning | Afternoon | Evening |
| 10 <= temperature <= 18 | Clothing = Sweatshirt  Shoes = Sneakers | Clothing = Shirt  Shoes = Moccasins | Clothing = Shirt  Shoes = Moccasins |
| 18 < temperature <= 24 | Clothing = Shirt  Shoes = Moccasins | Clothing = T-Shirt  Shoes = Sandals | Clothing = Shirt  Shoes = Moccasins |
| temperature >= 25 | Clothing = T-Shirt  Shoes = Sandals | Clothing = Swim Suit  Shoes = Barefoot | Clothing = Shirt  Shoes = Moccasins |

**Print on the console on a single line: "It's {temperature} degrees, get your {clothing} and {shoes}."**

### Example Input/Output

|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Output** | **Comments** | |
| 16  Morning | It's 16 degrees, get your Sweatshirt and Sneakers. | In the morning, when the degrees are 16, Victor takes a sweatshirt and sneakers. | |
| **Input** | **Output** | **Input** | **Output** |
| 22  Afternoon | It's 22 degrees, get your T-Shirt and Sandals. | 28  Evening | It's 28 degrees, get your Shirt and Moccasins. |

### Guidelines

1. Read the **input data from the console** and initialize two variables **outfit** and **shoes** of type **"string"**, with initial value **""**.



1. Check the temperature using **logical operator "and" (&&)**. Example: **"degrees** >= 10 && degrees <= 18**"** Within the temperature check, consider the time of the day: Morning, Afternoon, Evening by changing the value of the variables "outfit, shoes" **for each stage of the day**.



1. Print the result on the console following the format outlined in the task description.



## New Home

Martin and Nelly are buying a new house not far from Sofia. Nelly loves flowers so much that she convinces you **to write a program** to **calculate how much it will cost them**, to plant a certain number of flowers and **whether the available budget will be enough for them. Different flowers come at different prices.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Flower** | **Roses** | **Dahlias** | **Tulips** | **Narcissus** | **Gladiolus** |
| **Price per piece in BGN** | 5 | 3.80 | 2.80 | 3 | 2.50 |

**The following discounts exist:**

* **If Nelly buys more than 80 Roses - 10% discount from the final price**
* **If Nelly buys more than 90 Dahlias - 15% discount from the final price**
* **If Nelly buys more than 80 Tulips - 15% discount from the final price**
* **If Nelly buys less than 120 Narcissus - the price is increased by 15%**
* **If Nelly buys less than 80 Gladiolus - the price in increased by 20%**

**Three lines should be read from the console:**

* **Type of flowers - text with options - "Roses", "Dahlias", "Tulips", "Narcissus", "Gladiolus"**
* **Flowers count - an integer in the range [10... 1000]**
* **Budget - an integer in the range [50... 2500]**

Print **the result** on the console **on a single line:**

* **If their budget is enough - "Hey, you have a great garden with {flowersCount} {flowersType} and {sumLeft} leva left."**
* **If their budget is NOT enough, "Not enough money, you need {neededMoney} leva more."**

**The sum should be formatted to the second decimal place.**

### Example Input/Output

|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Output** | **Comments** | |
| Roses  55  250 | Not enough money, you need 25.00 leva more. | Nelly wants 55 Roses. The price of one rose is 5 BGN, therefore for 55 pieces Nelly will have to pay: 55 \* 5 = 275.  However, she has a 250 leva budget. Because 275 > 250, she is short of 25 leva. | |
| **Input** | **Output** | **Input** | **Output** |
| Tulips  88  260 | Hey, you have a great garden with 88 Tulips and 50.56 leva left. | Narcissus  119  360 | Not enough money, you need 50.55 leva more. |

## Fishing Boat

Tony and his friends were passionate about fishing. They were so enthusiastic about it that they opted to go fishing by boat. The rental **cost of the boat** depends on both the **season** and the **number of fishermen**.

**The price depends on the season:**

* **The price for renting the boat in the spring is 3000 BGN.**
* **The price for renting the boat in the summer and autumn is 4200 BGN.**
* **The price for renting the boat in winter is 2600 BGN.**

**The group receives a discount based on the number of people.**

* **If the group is up to 6 people including – a discount of 10%.**
* **If the group is from 7 to 11 people – a discount of 15%.**
* **If the group is from 12 people and more – a discount of 25%.**

Furthermore, the fishermen receive an **extra 5% discount** if the **total count of fishermen is even**. This additional discount **is applied after deducting the discounts mentioned above**, except during the **autumn season**. **In autumn**, this **extra discount does not apply**.

**Write a program** to **calculate** whether the fishermen will be able to **gather enough money for the fishing trip.**

### Input

**You will have to read three values from the Console:**

* **Group Budget - integer in the range [1... 8000]**
* **Season - string: "Spring", "Summer", "Autumn", "Winter"**
* **Fishermen Count - integer in the range [4... 18]**

### Output

**The result** should be printed **on the Console on a single line**:

* **If the budget is sufficient:**

"**Yes! You have {moneyLeft} leva left.**"

* **If the budget is not enough**:

"**Not enough money! You need {moreMoney} leva.**"

**The value of the currency** must be **formatted to the second decimal place**.

### Example Input/Output

|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Output** | **Comments** | |
| 3000  Summer  11 | Not enough money! You need 570.00 leva. | During the summer season, the fishing tourism expense is 4200 BGN. With 11 fishermen, a 15% discount is applied, resulting in a cost of 3570 BGN (4200 - 15% = 3570 BGN). Since the number of fishermen is odd, no additional discount is applied. As 3000 BGN is less than 3570 BGN, there is a shortage of 570.00 BGN. | |
| **Input** | **Output** | **Input** | **Output** |
| 3600  Autumn  6 | Not enough money! You need 180.00 leva. | 2000  Winter  13 | Yes! You have 50.00 leva left. |

## Journey

Oddly, many individuals tend to plan their vacations well in advance. A young programmer, for instance, possesses a specific **budget** and a certain amount of free time during a particular **season**. Your task is to create a program that **takes the budget** and **the season** as inputs from the console, and produces an **output** detailing **where the programmer will relax** and **how much he will spend**.

The **budget determines the choice of destination**, while the **and the season impacts how much of the budget will be spent**. In the **summer**, **camping** is the chosen option, while in the **winter**, a **hotel stay** is preferred. However, **if the destination is in Europe**, a **hotel stay will be selected no matter of the season**. Each **camping** site or **hotel** has a price associated with it, which corresponds to a **specific percentage of the budget**:

* If the budget is **100 leva or less -** the destination will be somewhere in **Bulgaria**
  + **Summer - 30%** of the budget
  + **Winter - 70%** of the budget
* If the budget is **1 000 leva or less -** the destination will be somewhere in the **Balkans**
  + **Summer - 40%** of the budget
  + **Winter - 80%** of the budget
* More **than 1 000 leva -** somewhere in **Europe**
  + When traveling around Europe, **regardless of the season**, you will spend **90% of the budget**.

### Input

The input is read from the console - two lines, provided by the user:

* **First line - Budget**, **floating point number** in the range **[10.00...5000.00].**
* **Second line -** One of two possible **seasons**: "**summer"** or "**winter"**

### Output

Two lines **must be printed as an output, on the console**.

* **First line -** "**Somewhere in {destination}**" among "**Bulgaria**", **"Balkans**" and "**Europe**"
* **Second line - "{holidayType} - {amountSpent}"**
  + **Holidays** can be between "**Camp**" and "**Hotel**"
  + **The amount** must be **rounded to the second decimal place**.

### Example Input/Output

|  |  |
| --- | --- |
| **Input** | **Output** |
| 50  summer | Somewhere in Bulgaria  Camp - 15.00 |
| 75  winter | Somewhere in Bulgaria  Hotel - 52.50 |
| 312  summer | Somewhere in Balkans  Camp - 124.80 |
| 678.53  winter | Somewhere in Balkans  Hotel - 542.82 |
| 1500  summer | Somewhere in Europe  Hotel - 1350.00 |

## Operations

Write a program that reads **two integers (N1 and N2)** along with an **operator** to perform a **mathematical operation** between them. The possible operations are: **Addition (+)**, **Subtraction (-)**, **Multiplication (\*)**, **Division (/)**, and **Modular Division (%)**. For **Addition**, **Subtraction**, and **Multiplication**, the **result and whether it is even or odd should be printed** on the console. For regular **Division**, the **quotient should be printed**. For **Modular Division**, the **remainder should be displayed**. It should be considered that the **divisor can be equal to 0** (zero), and **division by zero is not possible**. In this case, a **special message** should be printed.

### Input

From the console are read **3 lines** entered by the user:

* **N1** – an **integer value** in the range **[0...40 000]**
* **N2** – an **integer value** in the range **[0...40 000]**
* **Operator – one symbol** among the following: "**+**", "**-**", "**\***", "**/**", "**%**"

### Output

Print one line on the console:

* If the operation is **division**:
  + "{N1} / {N2} = {result}" - result formatted to **second decimal place**
* If the operation is **modular division**:
  + "{N1} % {N2} = {remainder}"
* In the case of **division by 0 (zero):**
  + "Cannot divide {N1} by zero"

### Example Input/Output

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Input** | **Output** | **Input** | **Output** | **Input** | **Output** |
| 10  12  + | 10 + 12 = 22 - even | 123  12  / | 123 / 12 = 10.25 | 112  0  / | Cannot divide 112 by zero |
| 10  1  - | 10 - 1 = 9 - odd | 10  3  % | 10 % 3 = 1 | 10  0  % | Cannot divide 10 by zero |
| 7  3  \* | 7 \* 3 = 21 - odd |

## Hotel room

A hotel provides **2 types of rooms**, **studio and apartment.** Your task is to create a program that computes the **total cost** **of a stay** for both the studio and the apartment. The prices are **determined by the month of the stay**:

|  |  |  |
| --- | --- | --- |
| **May and October** | **June and September** | **July and August** |
| Studio – **50** BGN/night | Studio – **75.20** BGN/night | Studio – **76** BGN/night |
| Apartment – **65** BGN/night | Apartment – **68.70** BGN/night | Apartment – **77** BGN/night |

The following discounts **are also available**:

* For **a studio**, for **more** than **7** nights in **May** and **October**: **5% discount**.
* For **a studio**, for **more** than **14** nights in **May** and **October**: **30% discount**.
* For **a studio**, for **more** than **14** nights in **June** and **September**: **20% discount**.
* For **an apartment**, for **more** than **14** nights**, no matter the month: 10% discount.**

### Input

The input is read from **the console** and contains **exactly 2 lines** entered by the user:

* **Month - string ("May", "June", "July", "August", "September"** **or "October")**
* **Count of nights - an integer in the range [1 ... 200]**

### Output

Print **2 lines** on the console:

* On the first line: **" Apartment: {price for the entire stay} lv."**
* On the second line: **" Studio: {price for the entire stay} lv."**

**The price for the entire stay formatted to the second decimal place**.

### Example Input/Output

|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Output** | **Comments** | |
| May  15 | Apartment: 877.50 lv.  Studio: 525.00 lv. | The month is **May** and the stay is **more than** **14** nights, so we **reduce** the price of the **studio** by **30%** (50 – 15 = **35)** and of the **apartment -** by **10%** (**65 - 6.5 = 58.5).**  The whole stay in **an apartment - 877.50 BGN**  The whole stay in **a studio - 525.00 BGN** | |
| **Input** | **Output** | **Input** | **Output** |
| June  14 | Apartment: 961.80 lv.  Studio: 1052.80 lv. | August  20 | Apartment: 1386.00 lv.  Studio: 1520.00 lv. |

## On Time for Exam

### A student is required to take an exam at a specific time (e.g., at 9:30 a.m.). However, he arrives at the exam room at a given time of arrival (e.g., 9:40 a.m.). The student is considered to have arrived on time if he arrives at the exam time or up to half an hour before it. If they arrive earlier than 30 minutes, he is considered early. If he arrives after the exam time, he is considered late. Write a program that reads the exam time and the time of arrival, and then prints whether the student is on time, early, or late, along with the number of hours or minutes he is early or late.

### Input

From the console are read **4 integer values** (one per line) entered by the user:

* The first line contains **an exam time – hour -** an integer from **0 to 23**.
* The second line contains **an exam time – minute -** an integer from **0 to 59**.
* The third line contains **the time of arrival – hour -** an integer from **0 to 23**.
* The fourth line contains **the time of arrival – minute -** an integer from **0 to 59**.

### Output

On the first line, print on of the following messages:

* "**Late**" - if the student arrives **later than the time of the exam**.
* "**On time**" - if the student arrives exactly **at the time of the exam or up to 30 minutes in advance**.
* "**Early**" - if the student arrives **more than 30 minutes before the exam time**.

On the second line, print a message, considering the following conditions:

* If the student arrives with **at least a minute difference from the exam time**, print on the next line:
  + For being late under an hour: **"{**mm} **minutes after the start"**
  + For a delay of 1 hour or more: **"**{hh:mm} **hours after the start"**.
    - Always print the minutes with 2 digits, such as "1:03".

### Example Input/Output

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 9  30  9  50 | Late  20 minutes after the start | 9  00  10  30 | Late  1:30 hours after the start | 10  00  10  00 | On time |
| 9  00  8  30 | On time  30 minutes before the start |  | 14  00  13  55 | On time  5 minutes before the start | 11  30  10  55 | Early  35 minutes before the start |
| 16  00  15  00 | Early  1:00 hours before the start |  | 11  30  8  12 | Early  3:18 hours before the start | 11  30  12  29 | Late  59 minutes after the start |

## Ski Holiday

Atanas decided to spend his vacation in Bansko and go skiing. Before he goes, however, he must book a hotel and calculate **how much his stay will cost**. The following types of accommodation are available, each with its corresponding prices for stay:

* + - **"room for one person" - 118.00 BGN per night**
    - "**apartment**" - **155.00 BGN per night**
    - **"President Apartment**" – **235.00 BGN per night**

Based on the number of days he plans to stay in the hotel (**example: 11 days = 10 nights**) and **the type of room** he chooses, he may be eligible for various **discounts**.

The available reductions are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **type of room** | **Less than 10 days** | **between 10 and 15 days** | **more than 15 days** |
| **room for one person** | does not use a discount | does not use a discount | does not use a discount |
| **apartment** | **30%** of the final price | **35%** of the final price | **50%** of the final price |
| **president apartment** | **10%** of the final price | **15%** of the final price | **20%** of the final price |

After the stay, Atanas' assessment of the hotel's services can be positive or negative**. If his assessment is** "**positive**"**, Atanas** adds **25**% of it to the price **with the already deducted discount**. If his assessment is "**negative**", he **deducts 10**% **from the price.**

### Input

The input is read from the console and consists of **three lines**:

* **First line**   **- days to stay** - **integer** in the range **[0...365]**
* **Second line** – **type of room -** "room for one person", "apartment" or "**president** apartment"
* **Third line - assessment - "**positive"or "negative"

### Output

One line should be printed as an output, on the console:

* **The price for his stay at the hotel, formatted to the second decimal place.**

### Example Input/Output

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Entrance** | **Exit** | **Comments** | | | |
| 14  apartment  positive | 1637.19 | **14 days => 13 nights =**> 13 \* 155.00 = 2015 BGN  **10 < 13 days < 15** => 2015 – 35%= 1309.75 BGN  **The assessment is positive** => 1309.75 + 25% = 1637.1875 -> 1637.19 BGN | | | |
| **Entrance** | **Exit** | **Entrance** | **Exit** | **Entrance** | **Exit** |
| 30  president apartment  negative | 4906.80 | 12  room for one person  positive | 1622.50 | 2  apartment  positive | 135.62 |