KEY CONCEPTS:

It is useful to combine conditions for testing. Some examples of Logic gates and their truth tables:

Gate with Logic table	Notes
NOT  INPUT A / OUTPUT 0 → 1 1 → 0	Reverses the input or condition e.g. NOT equals
AND  INPUT A, B / OUTPUT 0 0 → 0 1 0 → 0 0 1 → 0 1 1 → 1	Both conditions are true
OR  INPUT A, B / OUTPUT 0 0 → 0 1 0 → 1 0 1 → 1 1 1 → 1	Either condition is true

<table>
<tr>
<td>XOR
 
<table>
<tr><th colspan="2">INPUT</th><th rowspan="2">OUTPUT</th></tr>
<tr><th>A</th><th>B</th></tr>
<tr><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>0</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>1</td></tr>
<tr><td>1</td><td>1</td><td>0</td></tr>
</table>
</td>
<td>ONLY ONE of the conditions is true</td>
</tr>
<tr>
<td>NAND
 
<table>
<tr><th colspan="2">INPUT</th><th rowspan="2">OUTPUT</th></tr>
<tr><th>A</th><th>B</th></tr>
<tr><td>0</td><td>0</td><td>1</td></tr>
<tr><td>1</td><td>0</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>1</td></tr>
<tr><td>1</td><td>1</td><td>0</td></tr>
</table>
</td>
<td>One of the UNIVERSAL gates, from which all other logic combinations can be built.</td>
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</table>

1. We also created separate branches in code by testing a variable against multiple conditions using the `match...case` statement

   The general format format for the statement is as follows:

```
match variable:
    case condition1:
        Statements to execute
    case condition2:
        Other statements to execute
    .
    .
    .
    case _  :
         Statements if no conditions are matched
```

Things to pay attention to:

a. There is a colon sign (:) after the `match` clause and each of the `case` clauses
b. You need to insert a tab (or 4 spaces) to indent the statements that will be executed if the condition is true, and there are two tiers of indentation
c. The last special case of `case _ :` specifies where no conditions are met

HOMEWORK:

1. Write out the logic gates for NOR and XNOR grates
2. Write a program using that asks the user for a numeric grade between 0 and 100, and converts it to a letter grade using the table below:

   91 - 100: A
   81 - 90 : B
   71 - 80 : C
   61 - 70 : D
   60 or less: F

   Use `if..elif..else` statements to complete the assignment.
   HINT: use the `input()` function to ask the user for input and use the `int()` function to make sure the user input is treated as in integer

3. Write a program that asks the user for the kind of pet (dog, cat, parrot, etc) they have and suggest a name for their pet using the `match…case` statement