Let's make pasta!
What is algorithm?

✓ A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
Pasta Algorithm!

Boil water in a large pot: use at least 4 quarts of water for every pound of noodles.
Salt the water with at least a tablespoon
Add pasta
Stir the pasta: Do it every 5 minutes.
Test the pasta by tasting it: Pasta cooked properly should be a little chewy.
Drain the pasta
Enjoy your pasta
Pasta Flowchart!

1. Start
2. Boil water
3. Add salt
4. Stir the pasta
5. Wait 5 minutes
6. Taste it. Is it chewy?
7. Drain the pasta
8. End

If no, go back to step 6.
Flowchart:

Start

Boil water

Add salt

Stir the pasta

Wait 5 minutes

Taste it. Is it chewy?

Condition

Yes

Drain the pasta

No

End
Pasta Flowchart!

1. Start
2. Boil water
3. Add salt
4. Stir the pasta
5. Wait 5 minutes
6. Taste it. Is it chewy?
7. Drain the pasta
8. Loop

Yes: Drain the pasta

No: Taste it. Is it chewy?
Factorial  \((n!\))

1. Get a number and put in \(n\)
2. If \(n\) is equal to 0, print 1 and go to 8
3. Put \(n\) into \(\text{sum}\)
4. \(n = n - 1\)
5. If \(n\) is equal to 0, go to 7
6. \(\text{sum} = \text{sum} \times n\) and go to 4
7. Print \(\text{sum}\)
8. End
Conditions - if

```python
if expression:
    tab statement
```

```python
age = int(input("Enter your age!"))
if age > 17:
    print("You can buy alcohol")
if age <= 17:
    print("You cannot buy alcohol")
```
Conditions - nested if

```python
age = int(input("Enter your age!"))
state = int(input("Enter your state!"))

if age <= 17:
    print("You cannot buy alcohol")
if age > 18:
    if age >= 19:
        print("You can buy alcohol")
    if age < 19:
        if state == "Alberta":
            print("You cannot buy alcohol")
        if state == "Quebec":
            print("You can buy alcohol")
```
Conditions - nested if

```python
age = int(input("Enter your age!"))
state = int(input("Enter your state!"))

if state == "Alberta":
    if age > 17:
        print("You can buy alcohol")
    if age <= 17:
        print("You cannot buy alcohol")

if state == "Quebec":
    if age > 18:
        print("You can buy alcohol")
    if age <= 18:
        print("You cannot buy alcohol")
```
Conditions - And Condition

```
if EXPRESSION and/or EXPRESSION2:
    TABSTATEMENT
```

```python
age = int(input("Enter your age!"))
state = int(input("Enter your state!"))

if state == "Alberta" and age > 17:
    print("You can buy alcohol")
if state == "Alberta" and age <= 17:
    print("You cannot buy alcohol")
if state == "Quebec" and age > 18:
    print("You can buy alcohol")
if state == "Quebec" and age <= 18:
    print("You cannot buy alcohol")
```
Conditions - Or Condition

```python
age = int(input("Enter your age!"))
state = int(input("Enter your state!"))

if state == ("Alberta" and age > 17) or (state == "Quebec" and age > 18):
    print("You can buy alcohol")
if state == ("Alberta" and age <= 17) or (state == "Quebec" and age <= 18):
    print("You can buy alcohol")
```
age = int(input("Enter your age!"))
state = int(input("Enter your state!"))
if age <= 17:
    print("You cannot buy alcohol")
    if state == "Alberta":
        print("You cannot buy alcohol")
    elif state == "Quebec":
        print("You can buy alcohol")
elif age > 18:
    if age >= 19:
        print("You can buy alcohol")
    if state == "Alberta":
        print("You cannot buy alcohol")
    elif state == "Quebec":
        print("You can buy alcohol")
    else:
        print("You cannot buy alcohol")

age = int(input("Enter your age!"))
state = int(input("Enter your state!"))
if state == "Alberta" and age > 17:
    print("You can buy alcohol")
    if state == "Quebec" and age > 18:
        print("You can buy alcohol")
    else:
        print("You cannot buy alcohol")
elif state == "Alberta" and age <= 17:
    print("You cannot buy alcohol")
    if state == "Quebec" and age <= 18:
        print("You cannot buy alcohol")
    else:
        print("You cannot buy alcohol")
else:
    print("You cannot buy alcohol")

age = int(input("Enter your age!"))
state = int(input("Enter your state!"))
if state == "Alberta" and age > 17 or (state == "Quebec" and age > 18):
    print("You can buy alcohol")
    else:
        print("You cannot buy alcohol")
elif state == "Alberta" and age <= 17 or (state == "Quebec" and age <= 18):
    print("You can buy alcohol")
    else:
        print("You cannot buy alcohol")