
MODULE 6

WE THINK DIGITAL

Digital Opportunities



 Meta

We Think Digital

LESSON 1

Exploring Experiences



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How do our experiences
make us **unique**?



Choose One of Your Most Memorable Experiences and Discuss

Why is it memorable?

How has the memory shaped who you are today?

Has this memory defined parts of your personality? How?



Activity

Taking on a New Challenge





Activity

Share a Time When You Faced a Challenging Goal in the Past

How did you achieve it?

How did your past experiences shape how you approached the challenge?



Activity

When You Begin Something New That Seems Difficult, Think of the 3 Key Things We Discussed

Our purpose and things that motivate us.

Ways we have successfully approached difficult experiences in the past. What have we learnt?

How can we gain a new perspective around a challenge?



Activity

My Goal Plan



Share some steps you're going to take to try and achieve your goal.



Have past experiences shaped the steps you intend to take? How?

Identifying Our Strengths



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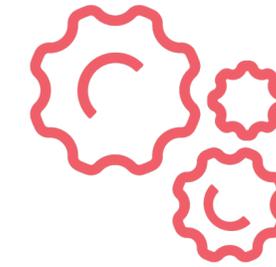
What Can You Uniquely Offer?

Let's explore our skills and strengths to pursue opportunities we're excited about!

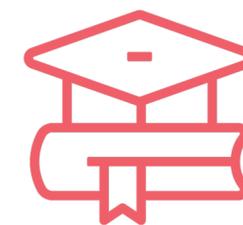


Activity

Assessing Your (Verb, Noun, and Adjective) Skills!



Transferable Skills



Knowledge or Domain Skills



Activity

Assessing Your (Verb, Noun, and Adjective) Skills!

Transferable Skills

Skills you transfer from one opportunity to the next.

Knowledge or Domain Skills

Skills specific to a certain knowledge area.



Activity

Write down 10 skills you rated most highly. Select a mix of:

- ✓ **Transferable Skills**
- ✓ **Knowledge or Domain Skills**
- ✓ **Personal Trait Skills**

1

Give a specific example of a time you used each skill.

2

From your list of 10 skills, how can you combine some of these skills to succeed?

LESSON 3

Creating a CV



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Think of Your Favorite Character From a Movie or TV Show

What positive quality or skill does this person have?
When did they demonstrate this skill?

What was the
situation?

What actions did
they take?

What was
the result?

Think of Your Favorite Character From a Movie or TV Show

What positive quality or skill does this person have?
When did they demonstrate this skill?

What was the
situation?

CONTEXT

What actions did
they take?

ACTIONS

What was
the result?

RESULTS



What Is a CV?

Have you created one before?

Have you explored ways of showcasing your experiences?

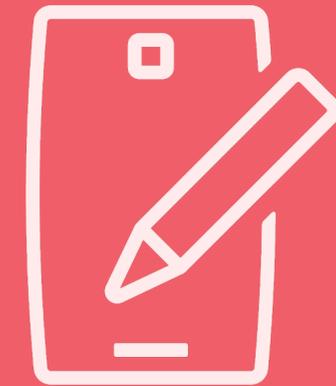


A Digital Portfolio



Activity

Creating Your CV



Getting Feedback



Activity

Creating Your CV: Getting Feedback

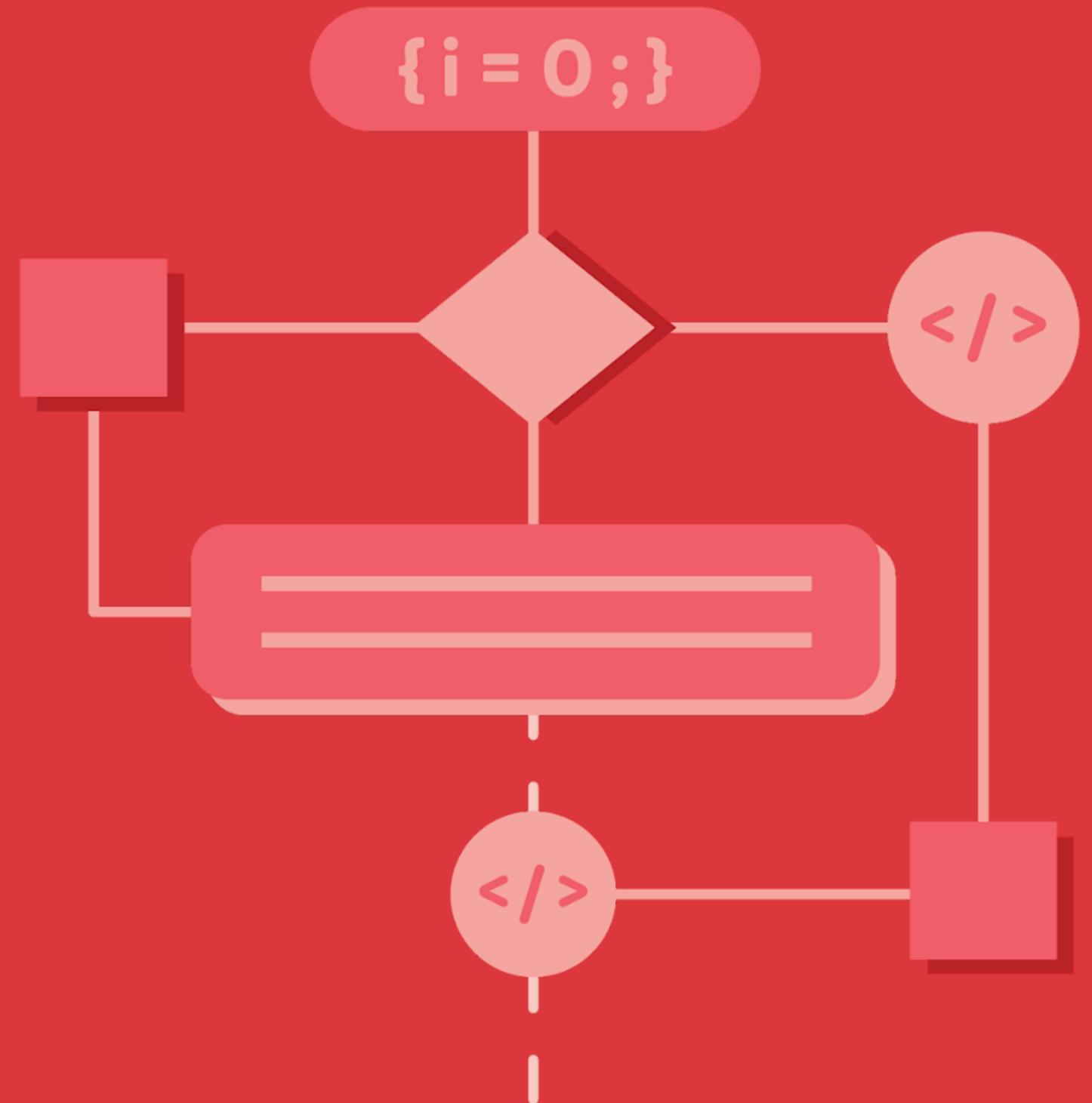
Review your CV.

Show your CV to
a teacher or
family member.

Compare the
1st and 2nd
version of
your CV.

What did you learn?

What Is an Algorithm?

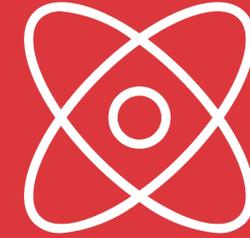


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Activity

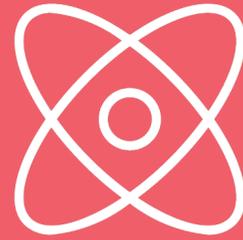
What Is an Algorithm?



An **algorithm** is a clearly given set of step-by-step instructions to solve a problem or accomplish a task.



Statue of Muhammad ibn Mūsā al-Khwārizmī Khiva, Uzbekistan



What Is an Algorithm?

In computer science, an **algorithm** is a sequence of precise instructions that tell a computer how to solve a problem or accomplish a task.



Activity

Let's Make Dumplings

GOAL/OUTPUT:

Makes 12 Dumplings

INGREDIENTS:

- ▶ 12 Dumpling Wrappers
- ▶ 12 pounds of cooked chicken
- ▶ 1 cup of cabbage, sliced
- ▶ ½ cup of mushrooms
- ▶ Onion, diced
- ▶ ½ cup of carrots
- ▶ Soy sauce

INSTRUCTIONS/STEPS:

- 1 Mix together the cabbage, onions, and soy sauce until well incorporated.
- 2 Sauté the carrots and mushrooms in a pan until soft. Then add the cabbage mixture and cook until soft. Take a quick break to watch your favorite TV show for a half-hour!
- 3 Remove the vegetable mixture from the heat and combine with two pounds of chicken and stir until well incorporated.
- 4 Add 1 tablespoon of filling to the center of a dumpling wrapper and then fold the wrapper.
- 5 Bring a large pot of water to a boil. Place into the boiling water as many dumplings as can comfortably fit in the pot. Boil them for three minutes and then remove them from the water onto a plate.
- 6 Place the six dumplings onto a plater and serve.



Activity

Is This Recipe an Algorithm?

GOAL/OUTPUT:

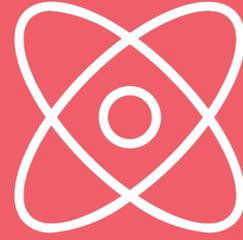
Makes 12 Dumplings

INGREDIENTS:

- ▶ 12 Dumpling Wrappers
- ▶ 1 cup of cabbage, sliced
- ▶ **1 cup** of onion, diced
- ▶ **2 pounds** of chicken
- ▶ $\frac{1}{2}$ cup of mushrooms
- ▶ $\frac{1}{2}$ cup of carrots
- ▶ **1 teaspoon** of soy sauce

INSTRUCTIONS/STEPS:

- 1 Mix together the cabbage, onions, and soy sauce until well incorporated.
- 2 Sauté the carrots and mushrooms in a pan for **three minutes**. Then add the cabbage mixture to the pan and cook for **six minutes**.
- 3 Remove the vegetable mixture from the heat and combine with two pounds of chicken and stir until well incorporated.
- 4 Add 1 tablespoon of filling to the center of a dumpling wrapper and then fold the wrapper. **Repeat 12 times**.
- 5 Bring a large pot of water to a boil. Place into the boiling water **4 dumplings at a time**. Boil them for three minutes and then remove them from the water onto a plate. **Repeat 3 times**.
- 6 Place **the twelve dumplings** onto a plater and serve.



What Is an Algorithm?

In computer science, an **algorithm** is a sequence of precise instructions that tell a computer how to solve a problem or accomplish a task.

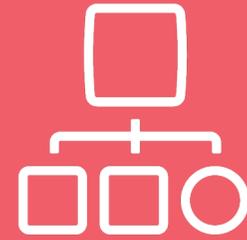


Activity

Out of Order:

Algorithms to the Rescue!





Two Computer Sorting Algorithms

**Bubble
Sort**

**Merge
Sort**



Two Computer Sorting Algorithms

Bubble Sort

A **bubble sort** is a simple sorting algorithm that repeatedly goes through a list of items, compares adjacent items, and swaps them if they are not in the correct order. This process is repeated until the items are sorted.





Two Computer Sorting Algorithms

Merge Sort

The strategy behind the **merge sort** is divide and conquer — an approach used in many computer algorithms, but also used to solve problems in general.

The idea behind divide and conquer is to make a problem easier to solve by dividing the problem into simpler versions of itself, solving these simpler versions, and then combining the versions to solve the problem you started with.

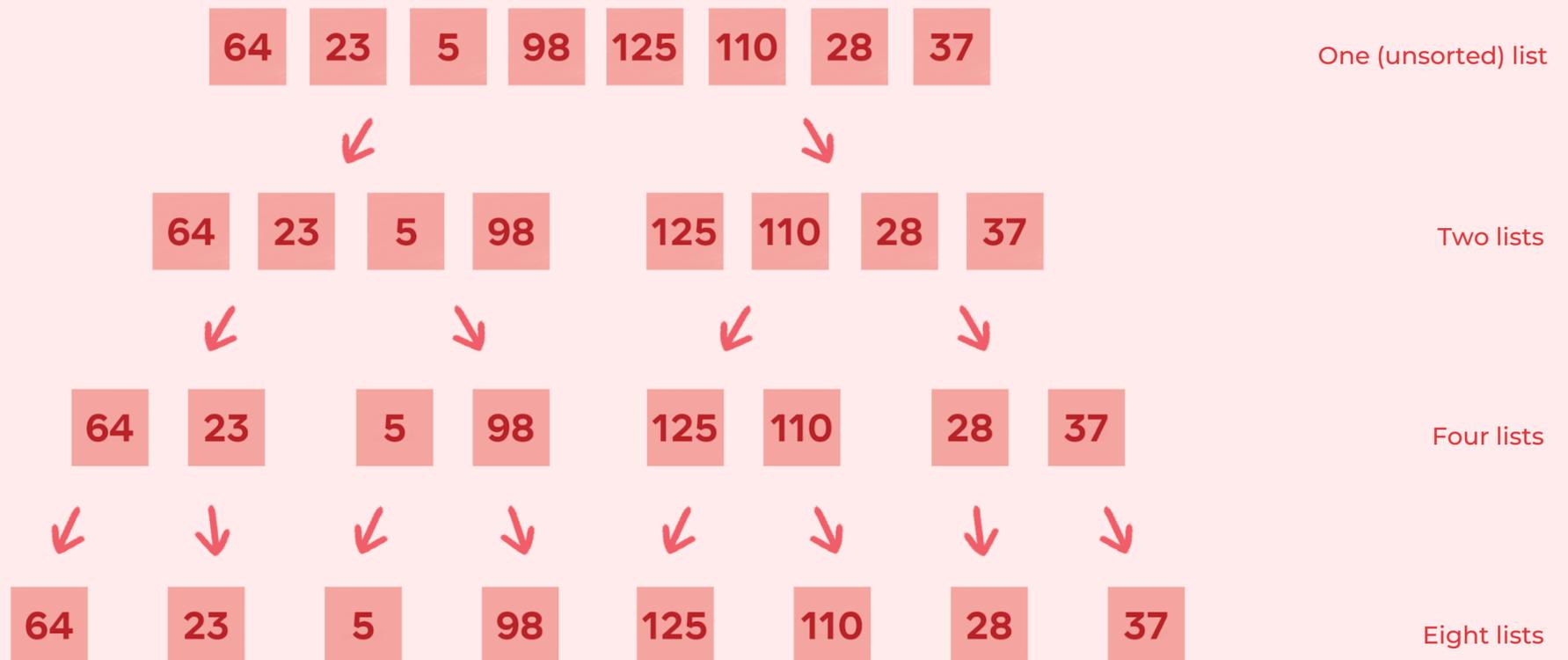
Step Two: Conquer





Activity

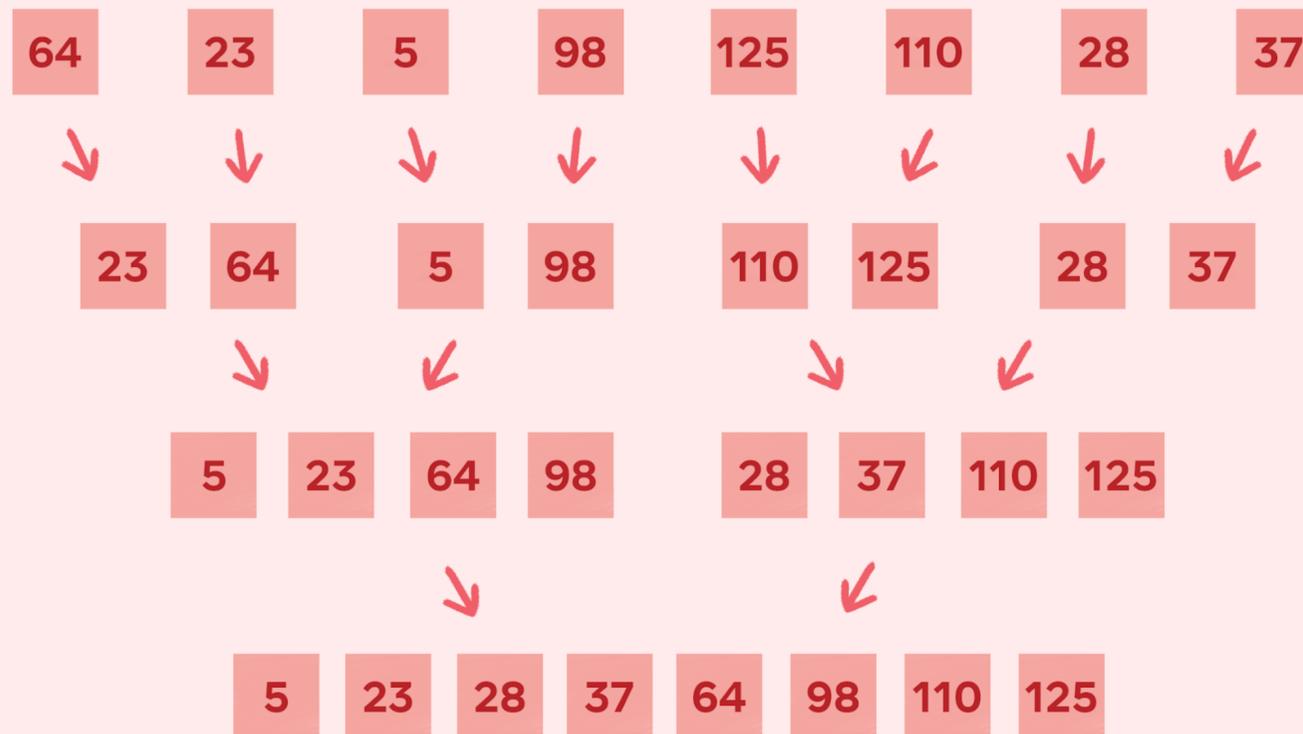
Step One: Divide





Activity

Step Two: Conquer



Eight sorted lists

Four lists

Two lists

One sorted list



Two Computer Sorting Algorithms

Bubble Sort

22

Comparisons

Merge Sort

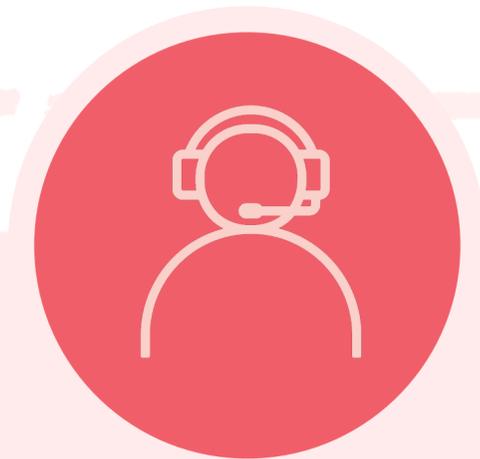
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Comparisons

Some Examples of Sorting Algorithms



GPS Systems



Google Assistant



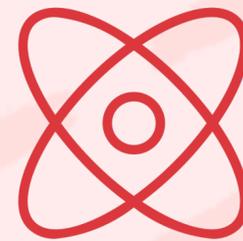
**Facebook Tagging
Your Photos**



Self-Driving Cars



Activity



Algorithms in Prime Time



Activity

Algorithms in Prime Time

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Activity

Algorithms in Prime Time

```
def apply_sieve(n):
    # n is the size of the sieve
    # Key Idea:
    # If a[i] == 0, then number i has been "crossed out",
    # if a[i] == 1, then the number i is not (yet) crossed out.
    a = [1]*(n+1) # Start with a list of 1s, of length (n+1).
    a[0] = 0 # set to zero, as
    a[1] = 0 # neither 0 nor 1 are primes
    p = 2 # 2 is the first prime
    pmax = int(round(n**0.5)) + 1 # we only need to sieve up to square root of n.
    while p < pmax:
        while a[p] == 0:
            p += 1
        j = 2*p
        while j < n:
            a[j] = 0
            j += p
        p += 1
    # return the list of primes, which are the numbers we have NOT crossed out.
    return [p for p in range(n) if a[p] == 1]
N = 1000 # Look for primes in the first one hundred numbers.
primes = apply_sieve(N)
print(primes)
>> 2,3,5,7,11,13,17,19,23,29,31,37,41,43,47,53,59,61,67,71,73,79,83,89,97
```



Creating Your Own Algorithm



Specify your goal

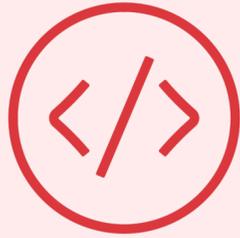


Write the steps for the given algorithm

- ▶ 5-10 steps
- ▶ Input(s) and output(s)

Remember:

An algorithm's instructions are well-defined. The algorithm should accomplish your goal!



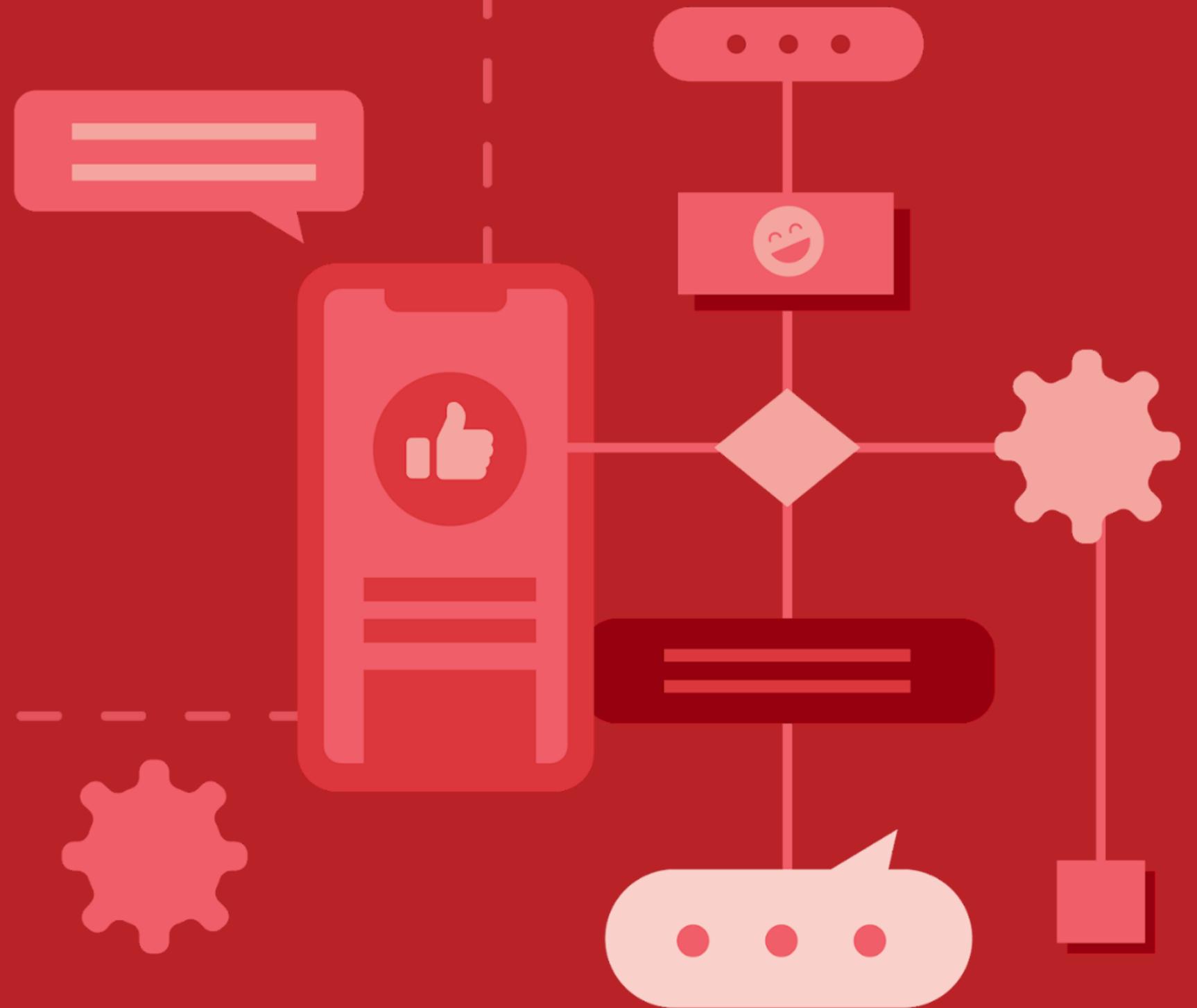
Creating Your Own Algorithm: **Share and Discuss**



- ▶ Can you replicate the steps of your partner's algorithm?
- ▶ What would you change?
- ▶ Can you make the algorithm more efficient? How?
- ▶ What did you learn?

LESSON 5

Social Media and Algorithms



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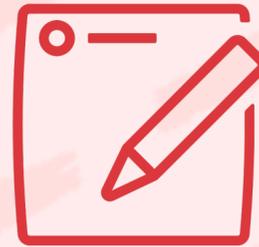


Let's Talk About Your Social Media Feed





Activity



Meet Sopita: Let's Create a Social Media Feed for Her



Activity

Sopita's Ideal Newsfeed

Was there any information you found useful in creating the feed?

Was there any information you found less useful in creating the feed?

What information would you have wanted to make the algorithm produce a feed that is more relevant?

Why would you want this information?

What information did you prioritize over others?



Activity

Let's Apply What You Learned Today About Social Media and Algorithms to Your Own Social Media Feed



MODULE 6

WE THINK DIGITAL

Digital Opportunities



 Meta

We Think Digital