AP COMPUTER SCIENCE

UNIT 7

LESSON 5:

Selection Sort

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Learning Objectives

- Understand how the selection sort algorithm orders an array of data
- Write code to implement the selection sort algorithm in Java
- Understand the advantages and disadvantages of using the selection sort algorithm to order the elements of an array

Goal:

Put the elements of the array in **order**

Steps:

Find the **smallest** value in the array.

Swap it with the current position (starting at first element).

Move the current position over one.

Repeat until _____.

Trace the steps of the selection sort?

21	79	64	67	56	12
0	1	2	3	4	5

What is stored in the array after two passes of the selection sort?

67	46	72	62	24	50
0	1	2	3	4	5

Advantages:

Easy to code and understand

Disadvantages:

Very slow for large datasets

Selection Sort Implementation

```
for (int j = 0; j < elements.length - 1; j++)
{
  int minIndex = j;
  for (int k = j + 1; k < elements.length; k++)
  {
    if (elements[k] < elements[minIndex])
    {
       minIndex = k;
    }
  }
  int temp = elements[j];
  elements[j] = elements[minIndex];
  elements[minIndex] = temp;
}
```