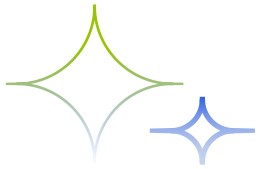

MONTANA
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Programming with C I

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Bitmasks

- We often want to manipulate or isolate specific bits from a collection
- A **bitmask** is a bit pattern that achieves this
- We can use and/or create bitmasks using bitwise operators

Example: CSCI courses

- **Array of ints vs. storing bits**
- **Bitmasks**
  - Setting bits to 1 with |
  - Setting bits to 0 with &
  - Computing union and intersection
  - “Masking off” unwanted bits
- **But how do we mask an arbitrary position?**

<< and >>

- **<< k shifts x left by k**

  00**110111** << 2 results in **11011**100

  0110**0011** << 4 results in **0011**0000

  1001**0101** << 4 results in **0101**0000

- **x >> k shifts x right by k**
- **Careful with unsigned ints for >>**

THE END

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