



Computational Thinking



CODERS CS TEAM



Missouri State
UNIVERSITY



Module-1



PROGRAMMING LOGICS AND STATES





What is a Computer?



mouse



keyboard



monitor



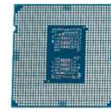
ram



motherboard



hard-drive



central processing unit (CPU)

System software

macOS®, Microsoft Windows,
Linux®, Android™

Application software

Microsoft Word, Google Maps™,
Gmail™

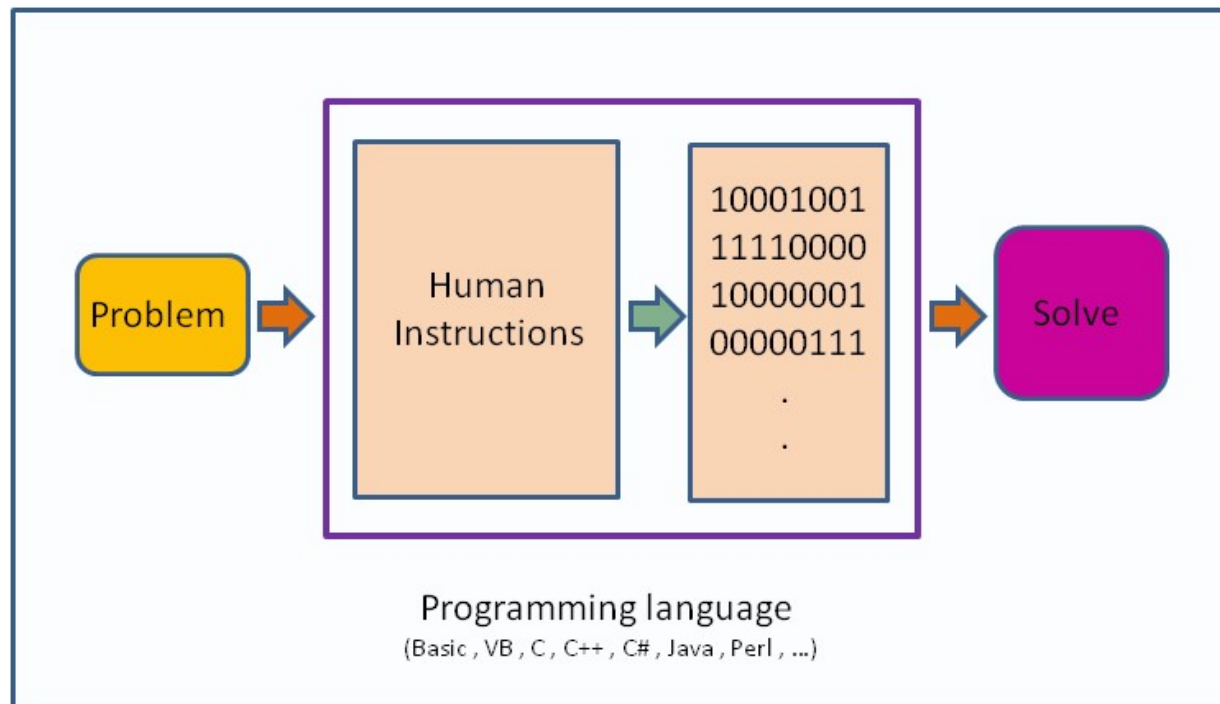


What is Computer Programming?

What is the difference between Programming and Coding?



Programming Language



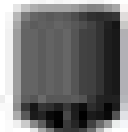


Binary!

1



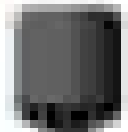
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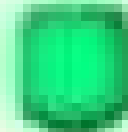
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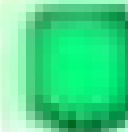
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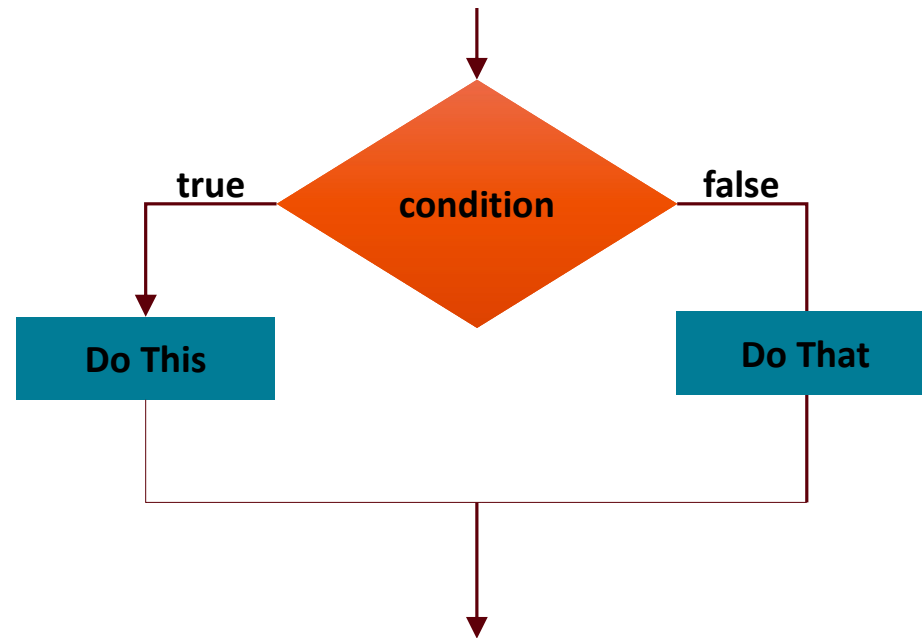


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Branching



- Make the program do something when a condition is True or False.
- Conditionals are used for program flow with If, Repeat, Forever, Wait



Think logically!

- Write down the steps to calculate the employees' gross pay based on hours worked and pay rate.

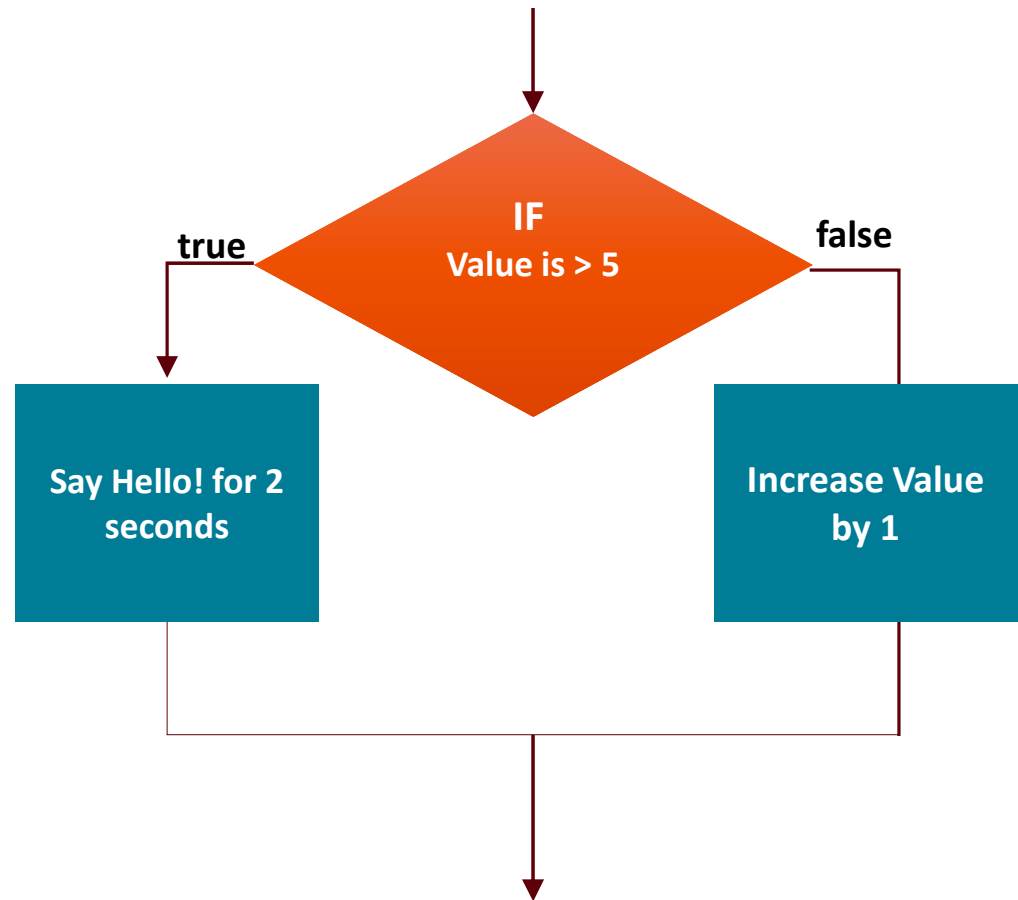




Conditionals: Example

```
when clicked
  set my variable to 0

when this sprite clicked
  change my variable by 1
  if my variable > 5 then
    say Hello! for 2 seconds
    set my variable to 0
```

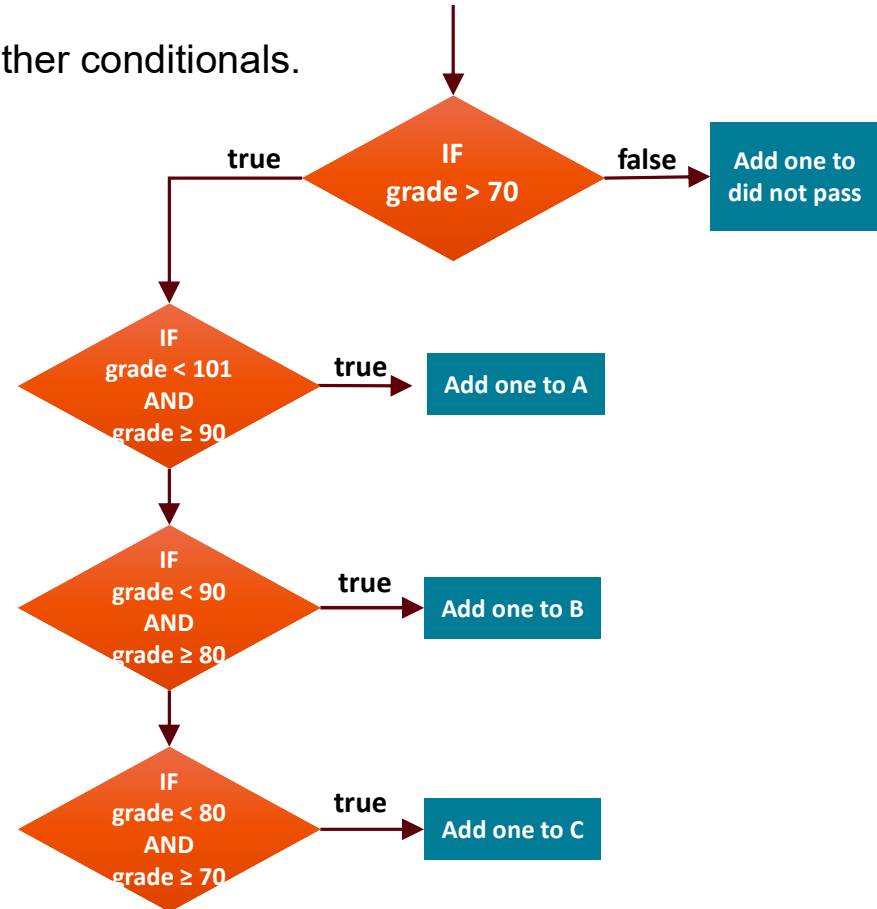




Conditionals: Nested if Statements

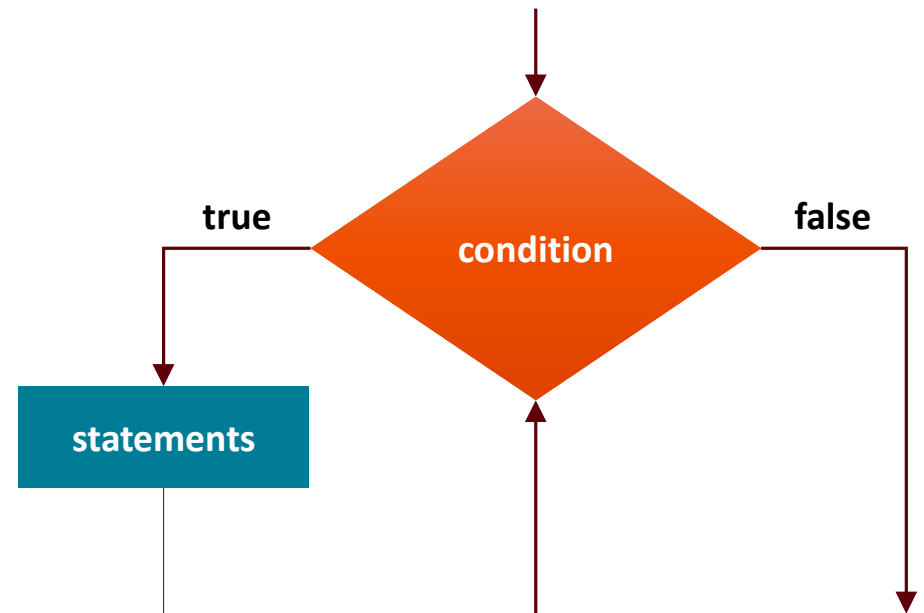
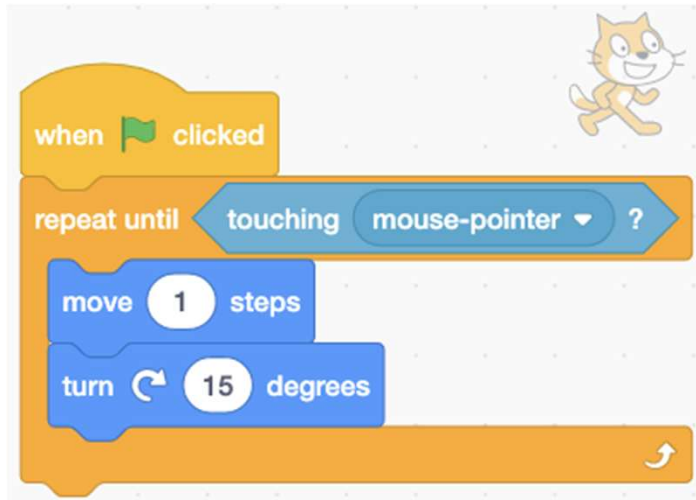
Executes conditionals based on the evaluation of other conditionals.

```
when I receive grade
  if grade > 70 then
    if grade < 101 and grade > 90 or grade = 90 then
      change A by 1
    if grade < 90 and grade > 80 or grade = 80 then
      change B by 1
    if grade < 80 and grade > 70 or grade = 70 then
      change C by 1
  else
    change Did not pass by 1
```



Loop

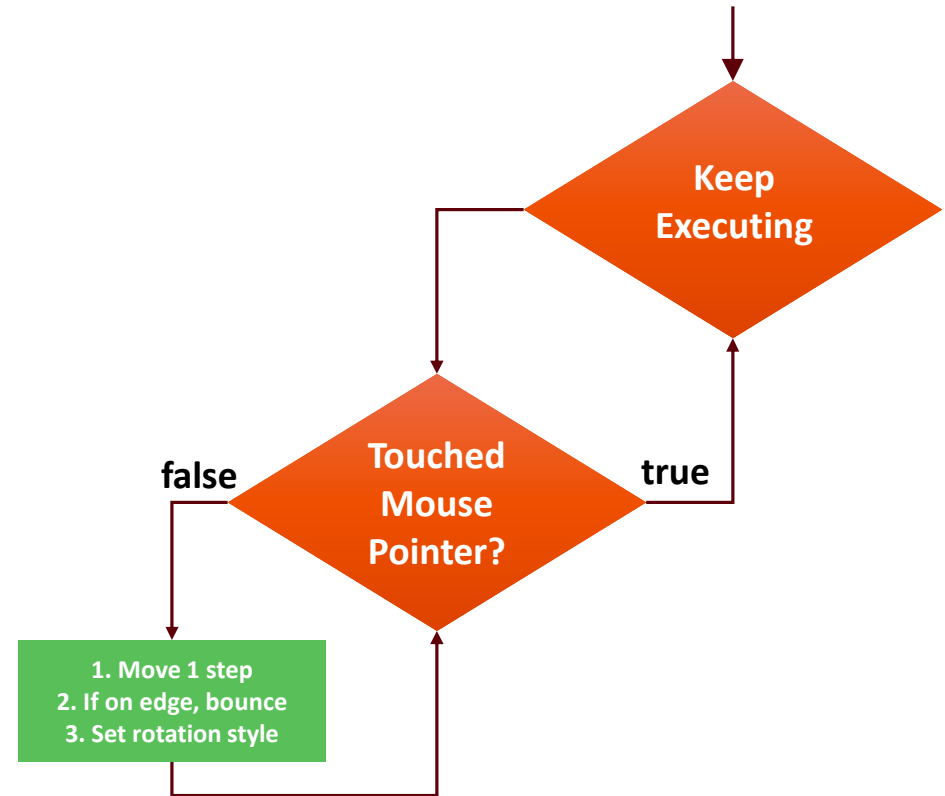
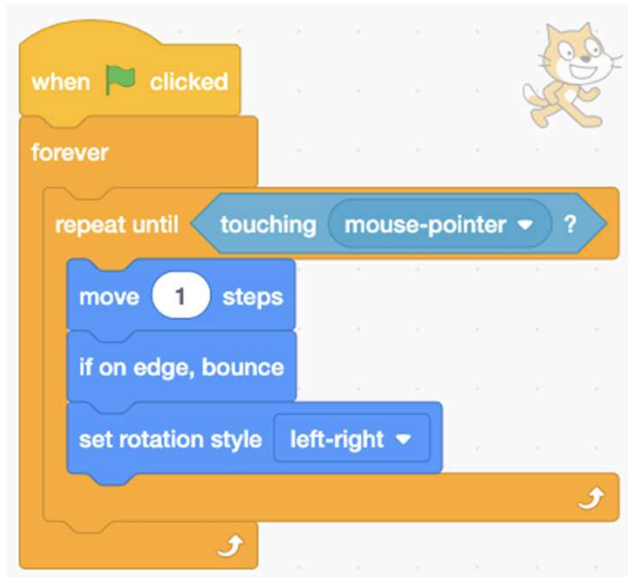
A **loop** allows repeated execution of a set of statements until a condition is met.





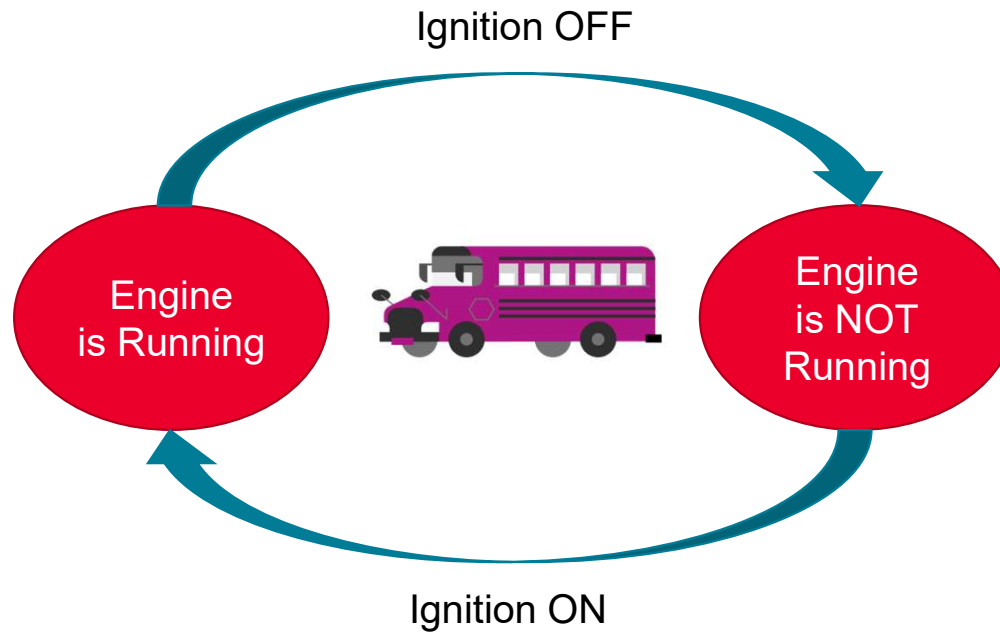
Nested Loop

A loop inside another loop.





Program States and Variables





Thank You



ANY QUESTIONS?