LECTURE 4

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WHAT IS DISCUSSED IN THE LAST CLASS

- Functions in python

TODAY, WE WILL LEARN ABOUT

- Conditionals

IF STATEMENT

```
def f(x):
  print("A", end="")
  if (x == 0):
    print("B", end="")
    print("C", end="")
  print("D")

f(0)
f(1)
```

IF STATEMENT

```
def abs1(n):
  if (n < 0):
    n = -n
  return n

def abs2(n):
  if (n < 0): n = -n
  return n

def abs3(n):
  if (n < 0):
    return -n
  return n

def abs4(n):
  return (n < 0)*(-n) + (n>=0)*(n)
```

```
print("abs1(5) =", abs1(5), "and abs1(-5) =", abs1(-5))
print("abs2(5) =", abs2(5), "and abs2(-5) =", abs2(-5))
print("abs3(5) =", abs3(5), "and abs3(-5) =", abs3(-5))
print("abs4(5) =", abs4(5), "and abs4(-5) =", abs4(-5))
```

IF-ELSE STATEMENT

```
def f(x):
  print("A", end="")
  if (x == 0):
    print("B", end="")
    print("C", end="")
  else:
    print("D", end="")
    if (x == 1):
      print("E", end="")
    else:
      print("F", end="")
  print("G")

f(0)
f(1)
f(2)
```

IF-ELSE STATEMENT

```
def abs5(n):
  if (n >= 0):
    return n
  else:
    return -n

def abs6(n):
  if (n >= 0):
    sign = +1
  else:
    sign = -1
  return sign * n

print("abs5(5) =", abs5(5), "and abs5(-5) =", abs5(-5))
print("abs6(5) =", abs6(5), "and abs6(-5) =", abs6(-5))
```

IF-ELSE EXPRESSION

- Expression not statement
  - Body first and then conditionals

```
def abs7(n):
  return n if (n >= 0) else -n

print("abs7(5) =", abs7(5), "and abs7(-5) =", abs7(-5))
```

IF-ELIF-ELSE STATEMENT

```
def f(x):
  print("A", end="")
  if (x == 0):
    print("B", end="")
    print("C", end="")
  elif (x == 1):
    print("D", end="")
  else:
    print("E", end="")
    if (x == 2):
      print("F", end="")
    else:
      print("G", end="")
  print("H")

f(0)
f(1)
f(2)
f(3)
```

```
ABCH
ADH
AEFH
AEGH
>
```

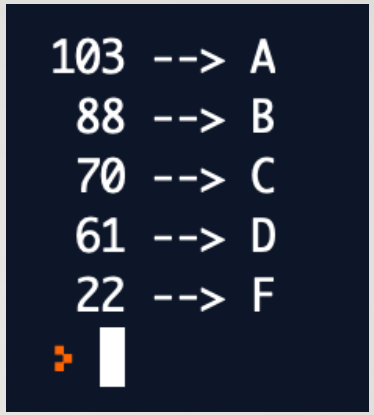
IF-ELIF-ELSE STATEMENT

```
def numberOfRoots(a, b, c):
  d = b**2 - 4*a*c
  if (d > 0):
    return 2
  elif (d == 0):
    return 1
  else:
    return 0

print("y = 4*x**2 + 5*x + 1 has", numberOfRoots(4,5,1), "root(s).")
print("y = 4*x**2 + 4*x + 1 has", numberOfRoots(4,4,1), "root(s).")
print("y = 4*x**2 + 3*x + 1 has", numberOfRoots(4,3,1), "root(s).")
```

```
y = 4*x**2 + 5*x + 1 has 2 root(s).
y = 4*x**2 + 4*x + 1 has 1 root(s).
y = 4*x**2 + 3*x + 1 has 0 root(s).
>
```

IF-ELIF-ELSE STATEMENT

```
def getGrade(score):
  if (score >= 90):
    grade = "A"
  elif (score >= 80):
    grade = "B"
  elif (score >= 70):
    grade = "C"
  elif (score >= 60):
    grade = "D"
  else:
    grade = "F"
  return grade

print("103 -->", getGrade(103))
print(" 88 -->", getGrade(88))
print(" 70 -->", getGrade(70))
print(" 61 -->", getGrade(61))
print(" 22 -->", getGrade(22))
```



QUESTION?