Module 3: Control Structures

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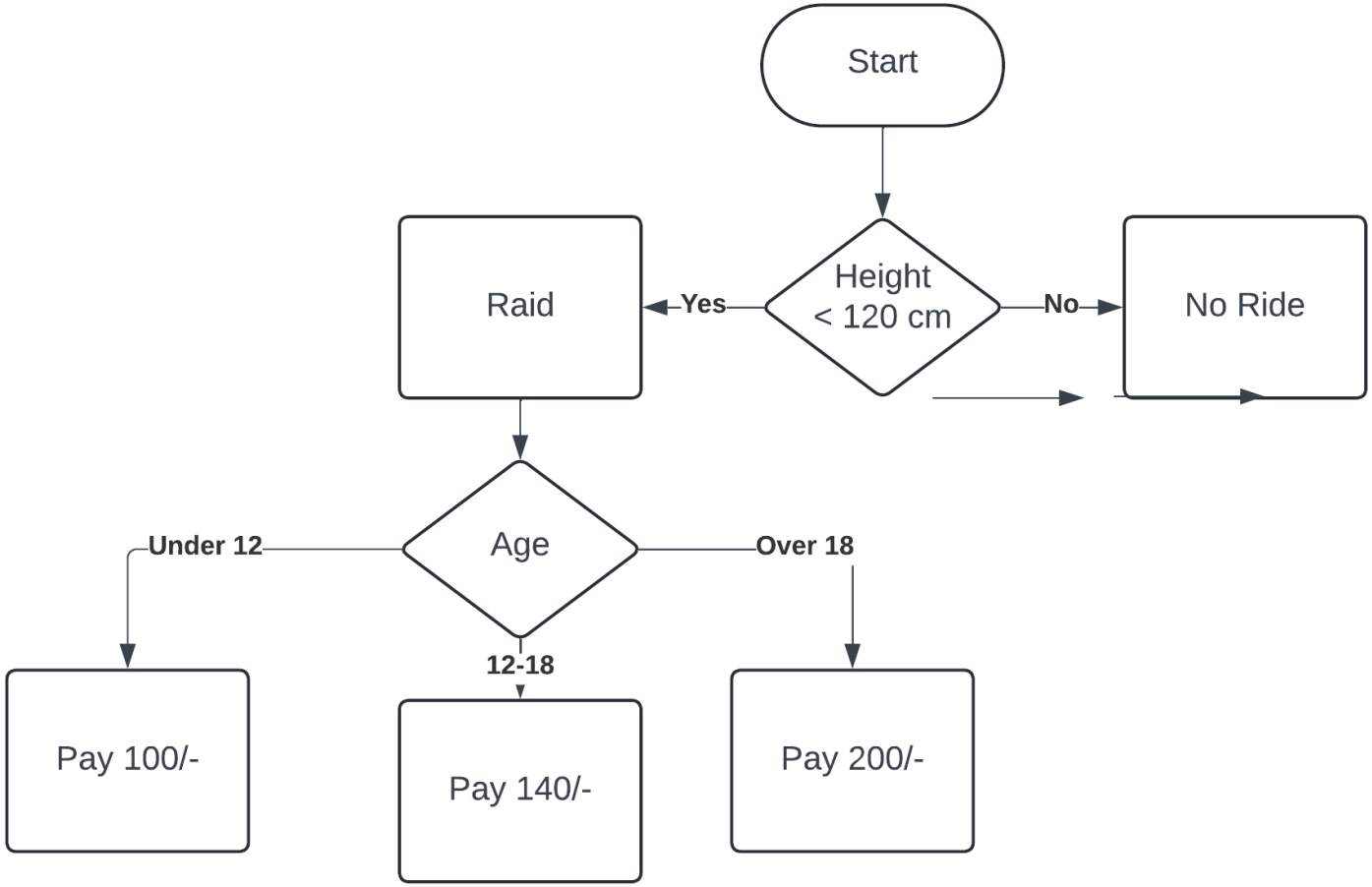
August 14, 2024

Topics to be covered in Module 3,

- Decision making and Branching
- if, if – else, nested if, multi-way if-elif statements
- Looping - While loop, For loop, else clauses in the loop,
- Nested loop
- Break, Continue, and Pass Statements

Example 1: Roller Coaster



Example 1: Roller coaster

Example (Python Snippet)

```
print('Welcome to the roller coaster!')
height = int(input('Whats your height in cm?))
if height >= 120:
    print('You can ride!')
    age = int(input('Whats your age?))
    if age < 12:
        print('Please pay Rs:100/-)
    elif age<=18:
        print('Please pay Rs:140/-)
    else:
        print('Please pay Rs:200/-)
else:
    print('You cannot ride!')
```

Example 2: BMI Calculation

Example (Python Snippet)

```
Write a python program that calculates the Body Mass Index
(BMI) from the users weight and height,
BMI = Weight (Kg) / Height * Height (m.m)
Algo with multi condition,
BMI Categories:
Underweight = <18.5
Normal weight = 18.5{24.9
Overweight = 25{29.9
Obesity = BMI of 30 or greater
```

Example 2: BMI Calculation

Example (Python Snippet)

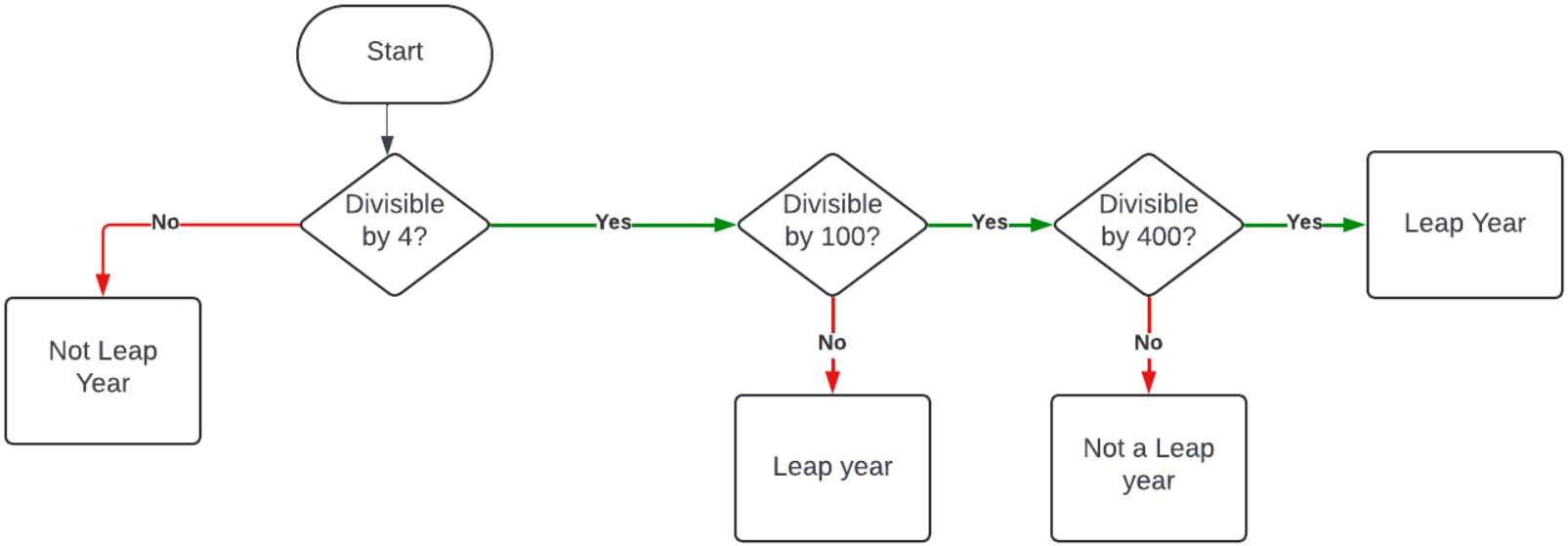
```
weight = float(input("Enter your weight in kilograms: "))
height = float(input("Enter your height in meters: "))

# Calculate BMI
bmi = weight / (height ** 2)

# Determine BMI category
if bmi < 18.5:
    category = "Underweight"
elif 18.5 <= bmi <= 24.9:
    category = "Normal weight"
elif 25 <= bmi <= 29.9:
    category = "Overweight"
else:
    category = "Obesity"
```

Example 3: Leap Year or not

Example (Python Snippet)

Find out weather a year is a leap year or not?

Example 3: Leap Year or not

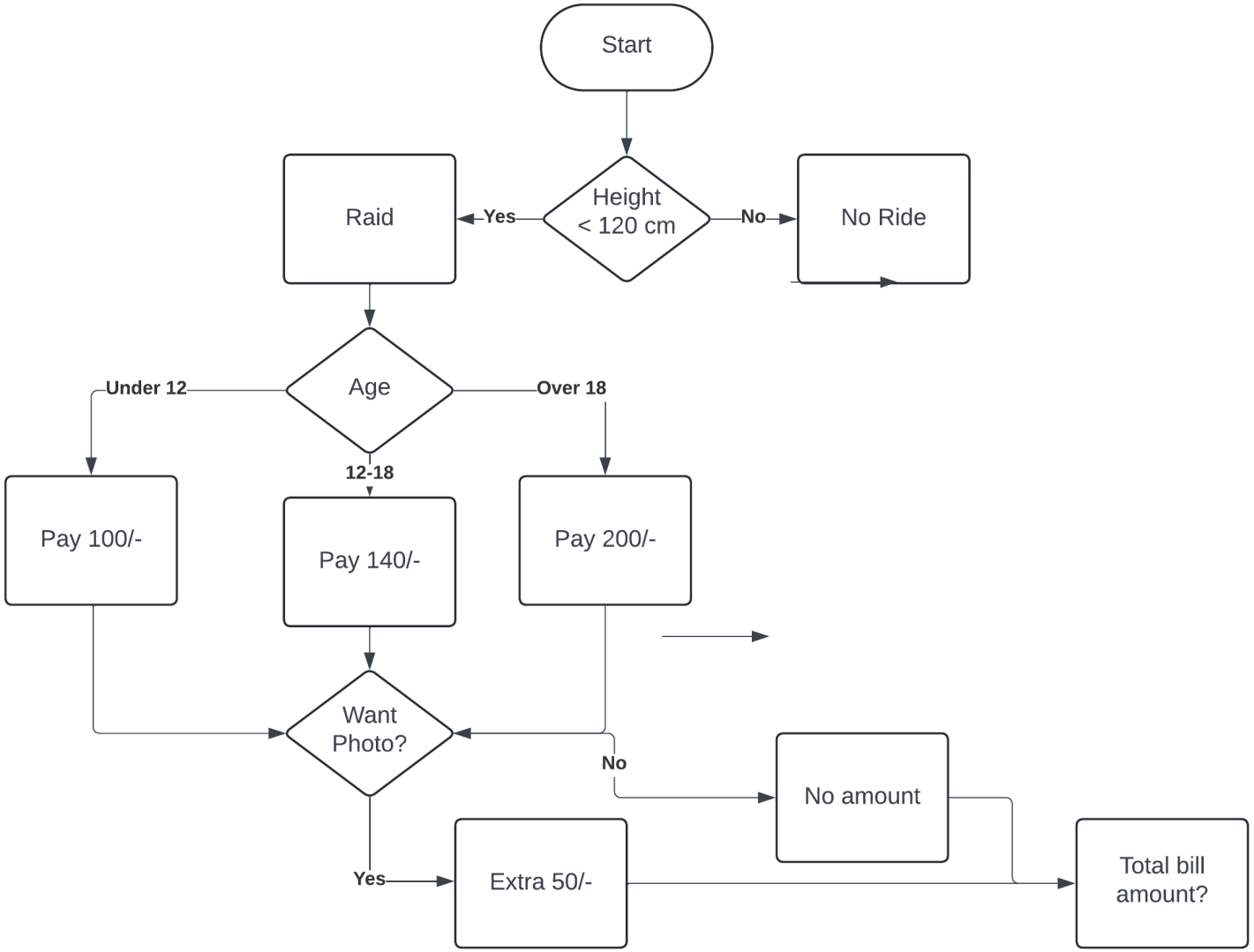


Example 3: Leap Year or not

Example (Python Snippet)

```
year = int(input('Whats the year?'))
if year %4==0:
    if year %100 ==0:
        if year %400 == 0:
            print('leap year')
        else:
            print('not a leap year')
    else:
        print('not a leap year')
else:
    print('not a leap year')
```

Example 4: Roller Coaster - Multiple if



Example 4: Roller Coaster - Multiple if

Example (Python Snippet)

```
print('Welcome to the roller coaster!')
height = int(input('Whats your height in cm?'))
bill = 0
if height >= 120:
    print('You can ride!')
    age = int(input('Whats your age?'))
    if age < 12:
        bill = 100
        print('Please pay Rs:100/-')
    elif age<=18:
        bill = 140
        print('Please pay Rs:140/-')
    else:
        bill = 200
        print('Please pay Rs:200/-')
```

Example 4: Roller Coaster - Multiple if

Example (Python Snippet)

```
    photo = input('You need photo? Yes / No?')
    if photo == 'yes':
        bill = bill + 50
    print('Your final bill amount', bill)
else:
    print('You cannot ride!')
```