“Learn to program”, BSE OUSL 2025/26

Live-session 5, 23 March 2026

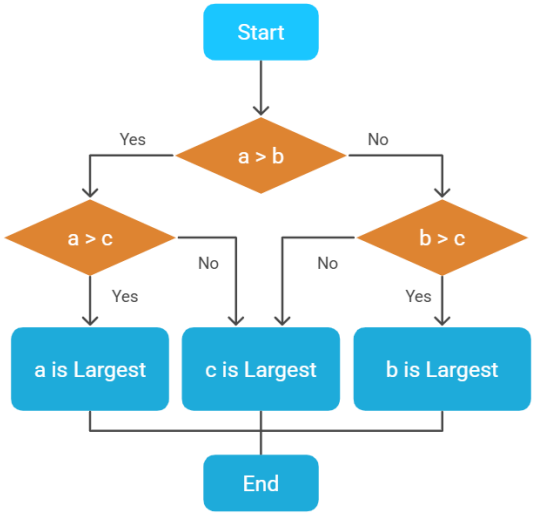
Visvanath Ratnaweera (EduNET.LK)

Plan for today

- Discuss the major part of Unit 3.
  - 3.5 Sort three numbers
  - 3.6 Grade to letter scale
  - 3.7 Julian day
- Pre-session, latter (minor) part of Unit 3
  - 3.9 Names of months
  - 3.10 Number of days in months
- Start of Unit 4
  - 4.1 Print 1..N
  - 4.2 Sum of 1..N

Unit 3: 3.5 Sort three numbers (**if**)

5	3	9
a	b	c

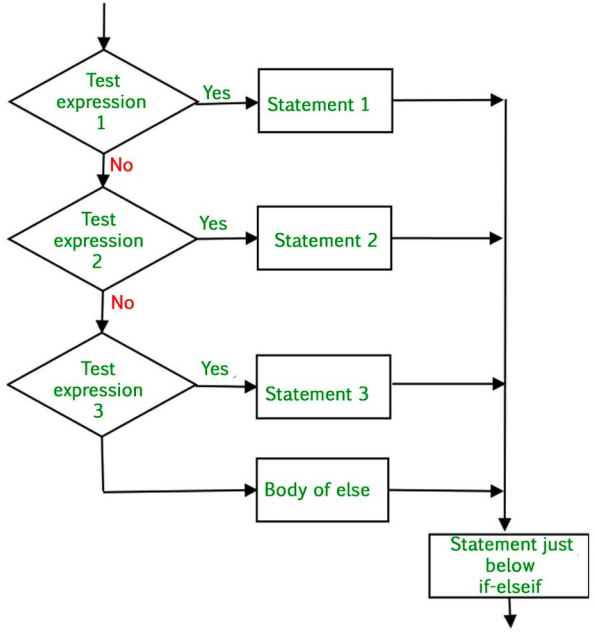



```
19  # case 1
20  # Check if 'a' is the smallest number (a <=b and a<=c)
21  # Compare the remaining two numbers (b and c)
22  # Print in ascending order
23
24  if a <= b:
25      if a <= c:
26          if b <= c:
27              print("The three numbers in ascending order:", a, b, c)
28
```

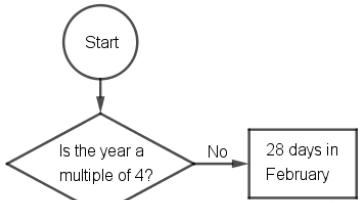
Unit 3: 3.6 Grading to letter scale (**if-elif-else**)

Grade Scale

Letter	Percentage
A	90 to 100%
B	80 to 89%
C	70 to 79%
D	60 to 69%
F	<60%



Unit 3: 3.7 Julian day (**if-elif-else** in depth)



Julian day is the day of the year:

- 1 January is Julian day 1
- 1 March is Julian day 60 in a common year, 61 in a leap year

A common year has 365 days, a leap year 366, the additional day being 29 February. A leap year is a multiple of 4, except for years evenly divisible by 100 but not by 400. Thus 1600, 2000 and 2400 are leap years, but 1700, 1800, 1900, 2100, 2200, and 2300 are not. Ref. https://en.wikipedia.org/wiki/Leap_year

Note: You may assume that this system was in effect since the "year 0" - it wasn't. This system was introduced in 1582 by Pope Gregory XIII. See https://en.wikipedia.org/wiki/Gregorian_calendar

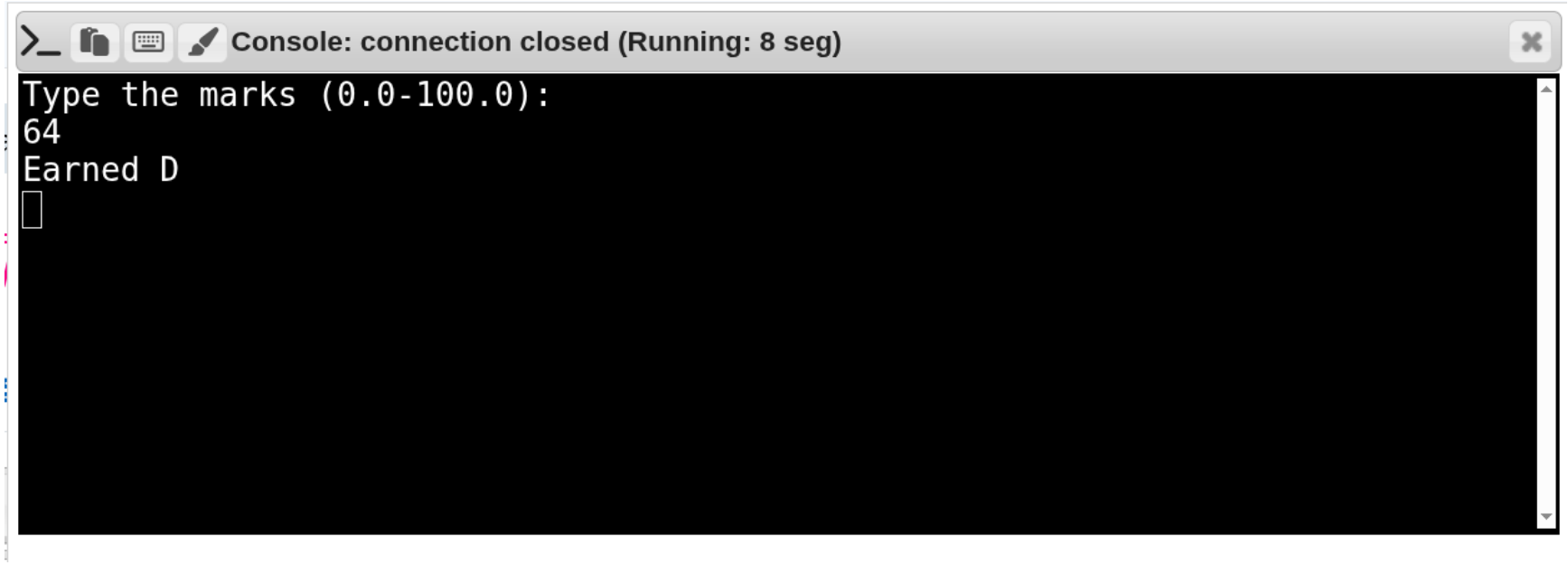
Pre-session: 3.9 Names of the week days (**match-case**)

```
 7  print("Type the day (1-7): ")
 8  day = int(input())
 9
10  match day:
11    case 1:
12      print("Monday")
13    case 2:
14      print("Tuesday")
15    case 3:
16      print("Wednesday")
17    case 4:
18      print("Thursday")
19    case 5:
20      print("Friday")
21    case 6:
22      print("Saturday")
23    case 7:
24      print("Sunday")
```

(contd.) 3.10 Cases combined (**match-case**)

```
6
7   day = int(input())
8
9   match day:
10    case 1 | 2 | 3 | 4 | 5:
11      print("It is a weekday")
12    case 6 | 7:
13      print("I love weekends!"
14
```

Unit 4. Iteration commands (Loops) I



No way to go back, to go in a loop!

4.1 Print 1..N (**while**)

Print 1 2 3..N for a given N.

Input:

```
Type N: 4
```

Output:

```
1
2
3
4
```

```
 6
 7  print("Type n: ")
 8  n = int(input())
 9
10  i = 1
11  while (i <= n):
12      print(i)
13      i = i + 1
14
```

4.2 Sum of 1..N (**while**)

Find the sum $1 + 2 + 3 + . . N$ for a given N.

Note: Don't use the closed formula $N(N + 1)/2$ but just add $1 + 2 + 3 + . .$ in a loop.

Input:

```
Type N: 4
```

Output:

```
10
```

```
 6
 7  print("Type n: ")
 8  n = int(input())
 9
10  i = 1
11  while (i <= n):
12      print(i)
13      i = i + 1
14
```

To come

- Unit 4. Iteration commands (loops) contd.
- Unit 5. Subprograms, start (pre-session 6)