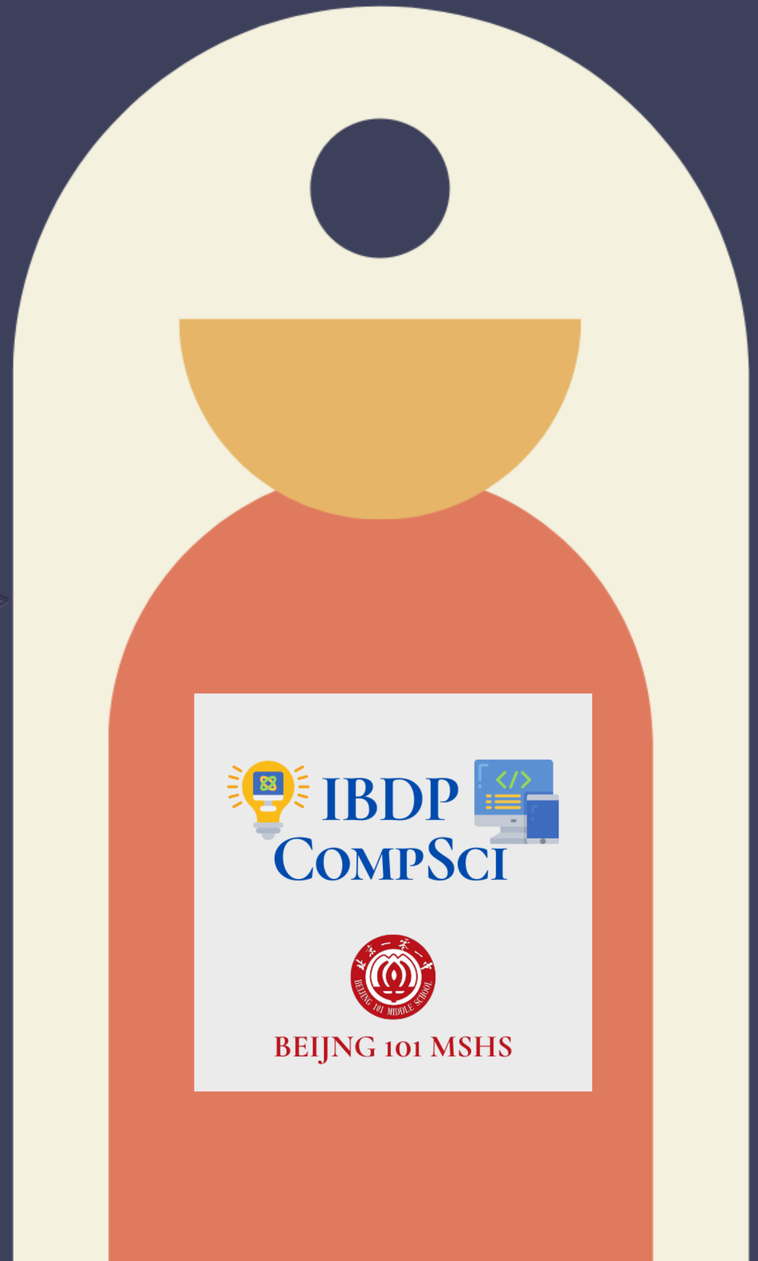
Welcome to Computer Science ***IBDP***

Beijing 101 Middle/High School



Highlights from Last time

- Computational thinking.
- Decision Making and Examples of Captcha
- Algorithms and its needs

Lets write an algorithm of your Monday at BJ101

Use any method you like!

Today

- Expressions of Algorithms.
- Flowcharts
- Introduction to Pseudo code

Expression of An Algorithm

What are some Expression of An Algorithm you use?

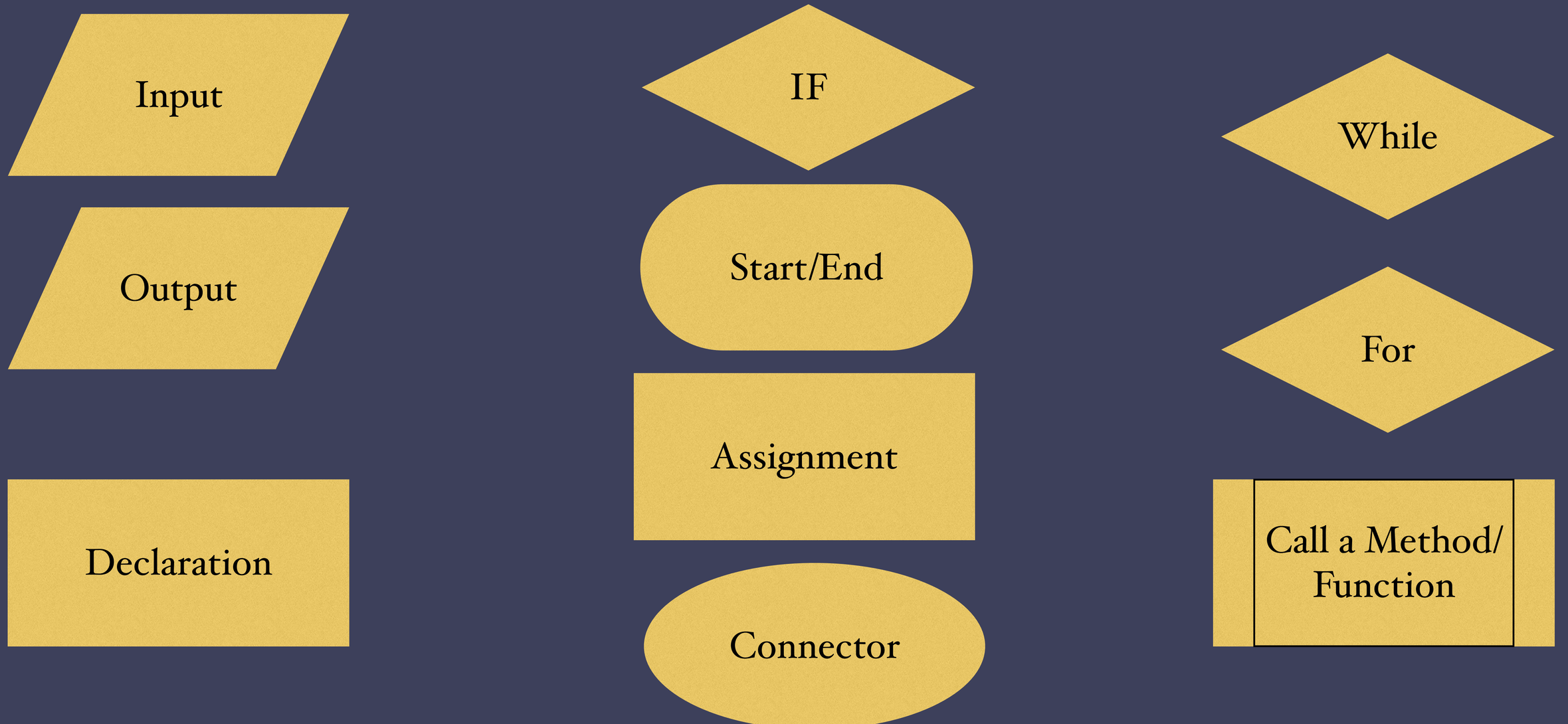
Expressions of An Algorithm

- ♥ Simple English (Natural Language)
- ♥ Flow Chart
- ♥ Pseudo Code
- ♥ Programming Language

FlowChart

- Shapes that describe the process of an algorithm.
- Fixed symbols that represent its own meaning.
- Connected with standard flow

Flowchart Acceptable Shapes



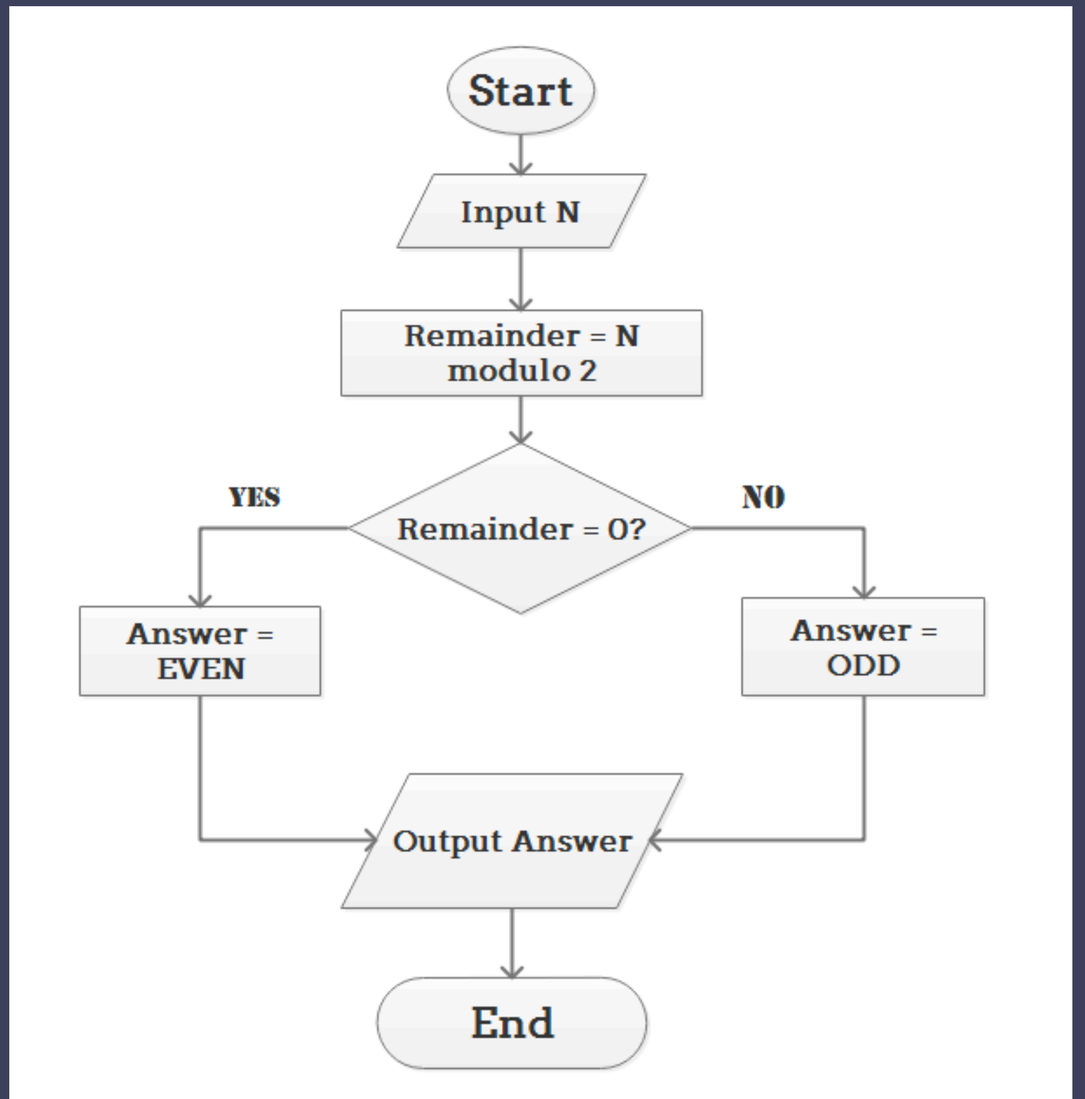
Example 1: Determine and Output Whether Number N is Even or Odd

Step 1: Read number N.

Step 2: Set remainder as N modulo 2.

Step 3: If the remainder is equal to 0 then number N is even, else number N is odd.

Step 4: Print output.

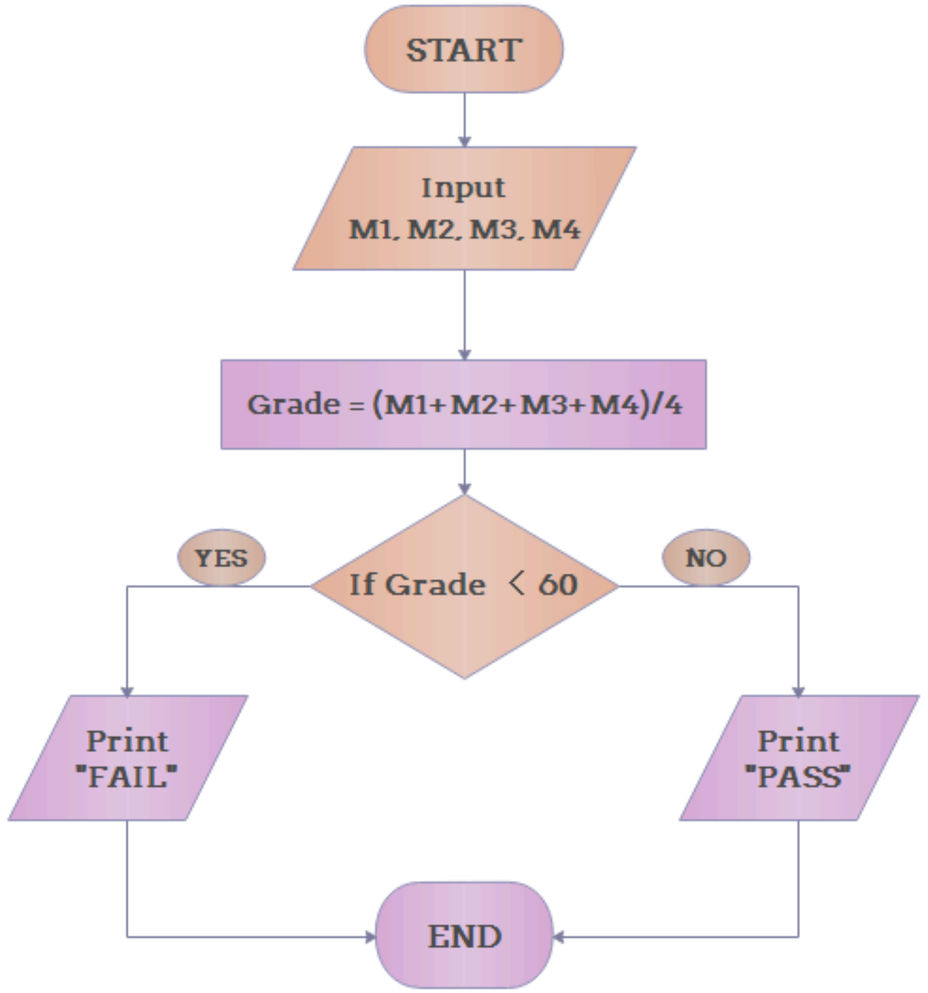


Determine Whether A Student Passed the Exam or Not

Step 1: Input grades of 4 courses M1, M2, M3 and M4.

Step 2: Calculate the average grade with the formula "Grade=(M1+M2+M3+M4)/4".

Step 3: If the average grade is less than 60, print "FAIL", else print "PASS".



Determine Whether a Temperature is Below or Above the Freezing Point

Try working out an algorithm and make a flowchart of it.

Determine Whether a Temperature is Below or Above the Freezing Point

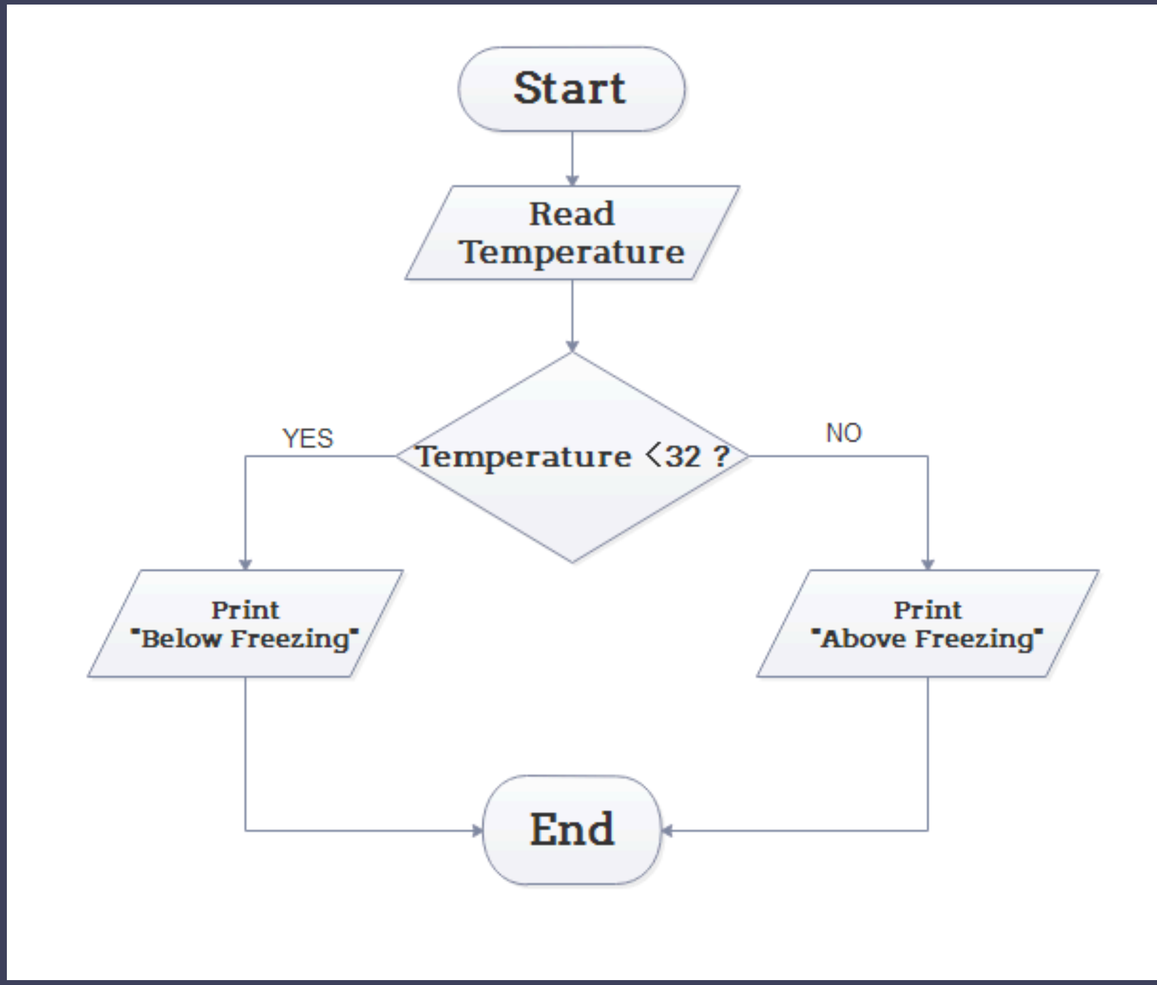
Step 1: Input temperature.

Step 2: If it is less than 32, then print "below freezing point", otherwise print "above freezing point".

Determine Whether a Temperature is Below or Above the Freezing Point

Step 1: Input temperature.

Step 2: If it is less than 32, then print "below freezing point", otherwise print "above freezing point".



Difference between Algorithm and Flowchart

Algorithm	Flowchart
It is a procedure for solving problems.	It is a graphic representation of a process.
The process is shown in step-by-step instruction.	The process is shown in block-by-block information diagram.
It is complex and difficult to understand.	It is intuitive and easy to understand.
It is convenient to debug errors.	It is hard to debug errors.
The solution is showcased in natural language.	The solution is showcased in pictorial format.
It is somewhat easier to solve complex problem.	It is hard to solve complex problem.
It costs more time to create an algorithm.	It costs less time to create a flowchart.

Lets work on a Basic Flowchart Expressing your Monday Algorithm done the last time.
Submit on managebac tomorrow.

Thank you and see you next time.