

Introduction to Programming

UNV102



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Introduction to Programming

Chapter 1: Computer System Hardware

Chapter 2: Computer System Software

Chapter 3: Numbering Systems and Arithmetic Operations

Chapter 4: Flowcharting

Chapter 5: Programming

Chapter 6: Introduction to Computer Networks

Ch5- Programming

Programming

Refers to the act of instructing the computer to do something for us with the help of programming language.

if you need from computer to find the inverse of 100×100 matrix (100 row and 100 column)

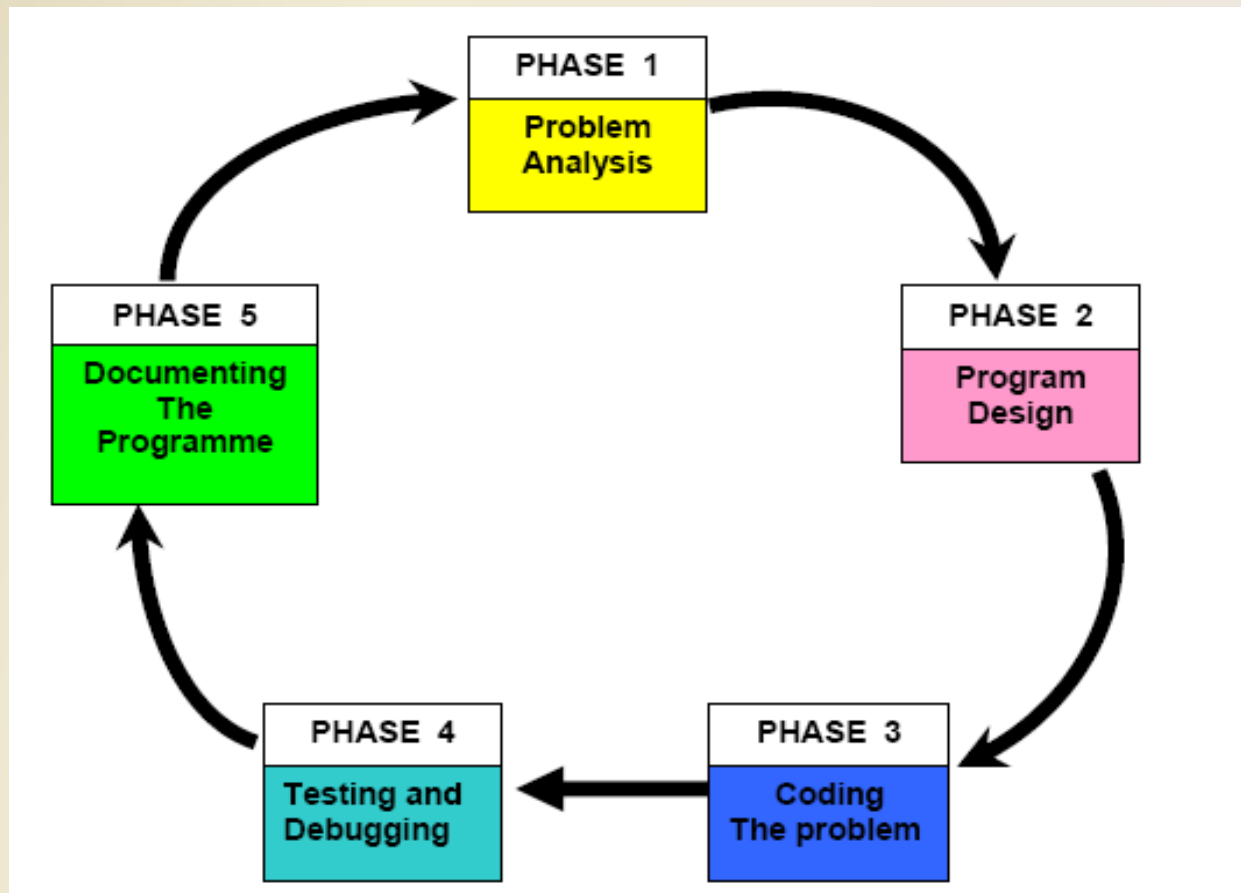
Ch5- Programming

Just BASIC

- ✓ Is a programming language for the Windows operating system.
- ✓ It is suitable for creating all kinds of applications for business, industry, education and entertainment.

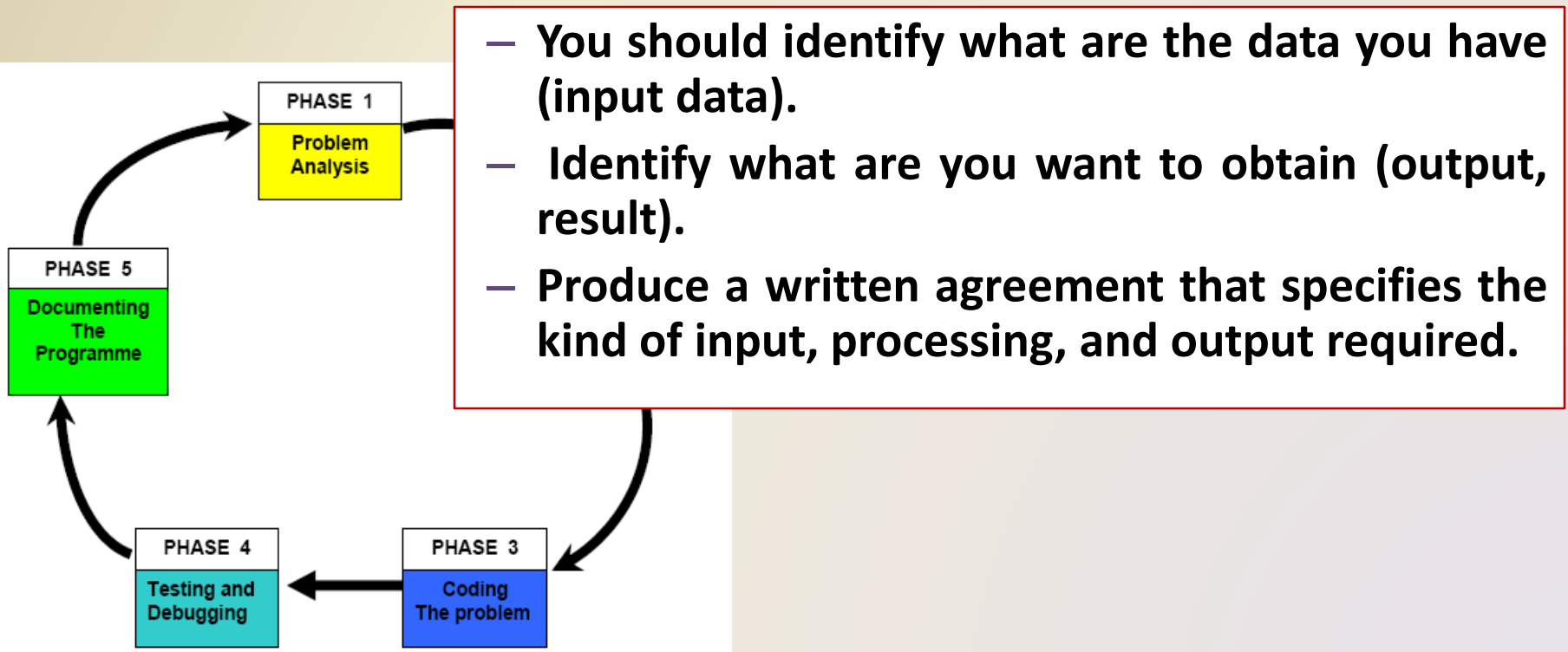
Ch5- Programming

Phases required to produce a program



Ch5- Programming

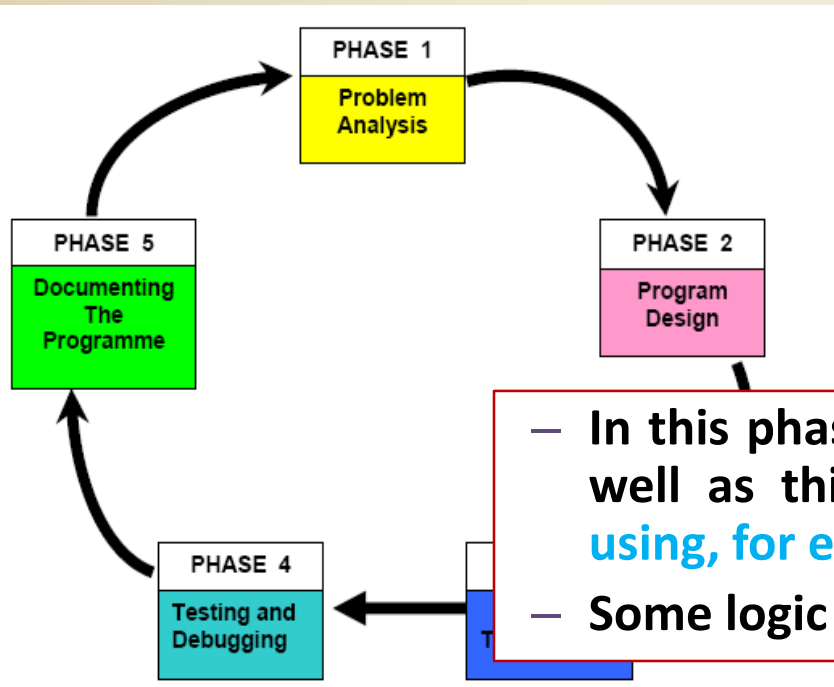
Phases required to produce a program



- You should identify what are the data you have (input data).
- Identify what are you want to obtain (output, result).
- Produce a written agreement that specifies the kind of input, processing, and output required.

Ch5- Programming

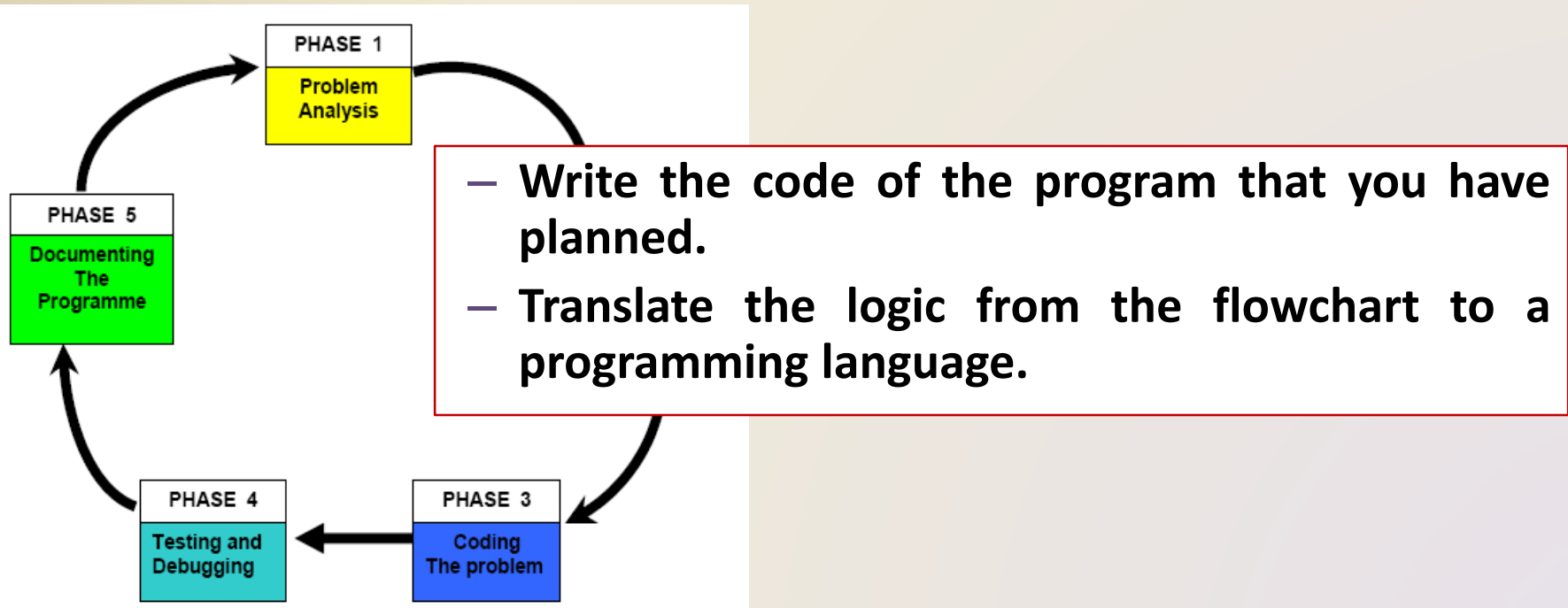
Phases required to produce a program



- In this phase, you will plan the problem solution as well as thinking about the look of your program using, for example, the Pseudo-code and flowchart
- Some logic statement may be used

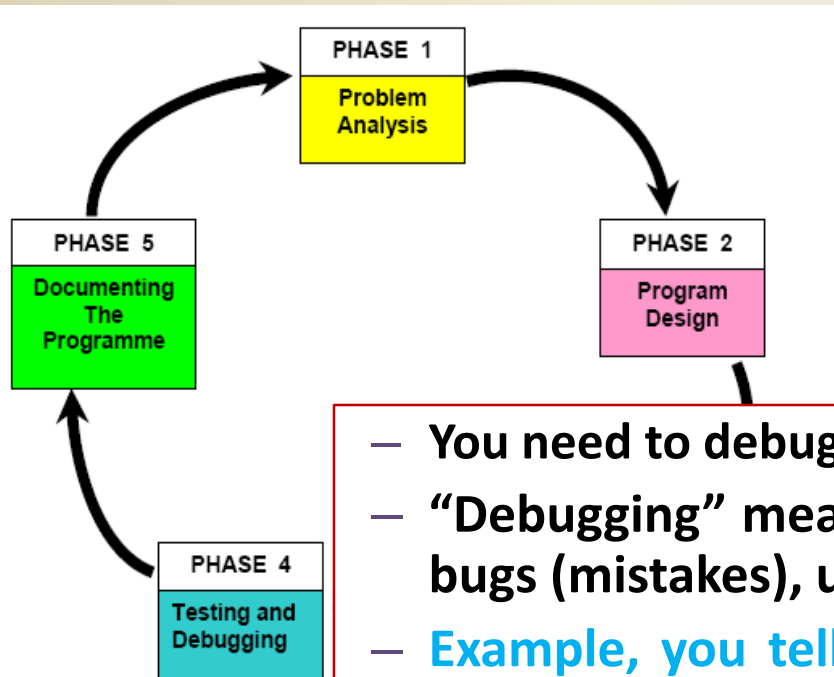
Ch5- Programming

Phases required to produce a program



Ch5- Programming

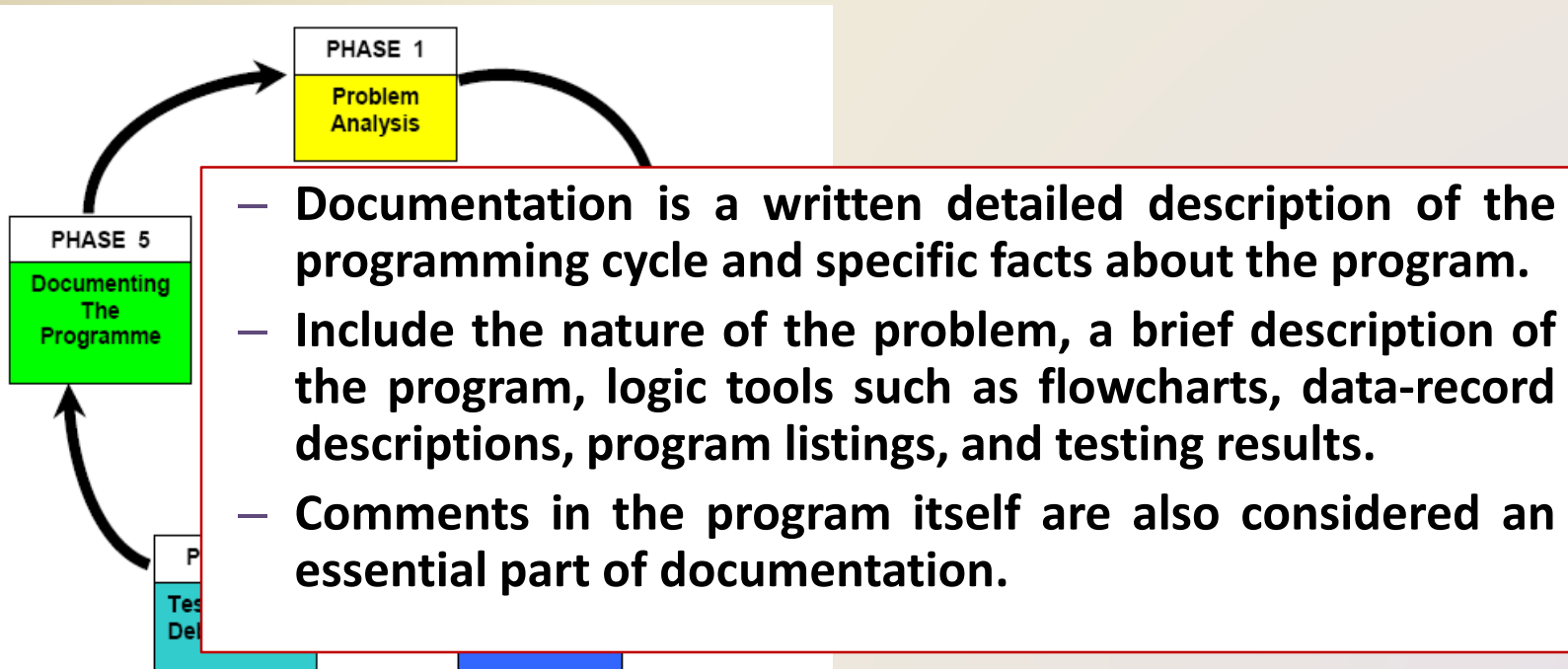
Phases required to produce a program



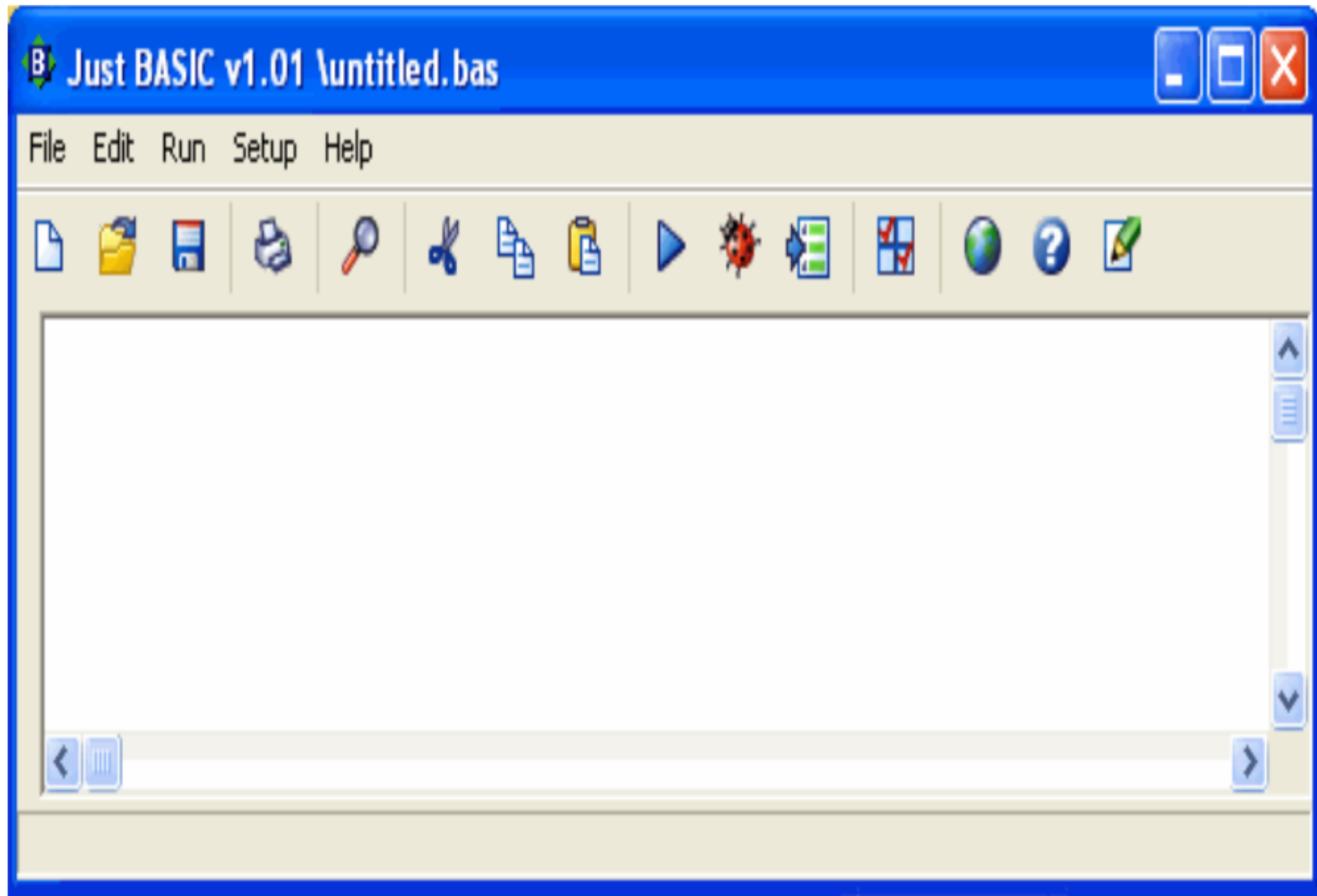
- You need to debug to improve your program.
- “Debugging” means detecting, locating, and correcting bugs (mistakes), usually done by running the program.
- **Example, you tell a computer to repeat an operation but not telling it how to stop repeating.**

Ch5- Programming

Phases required to produce a program

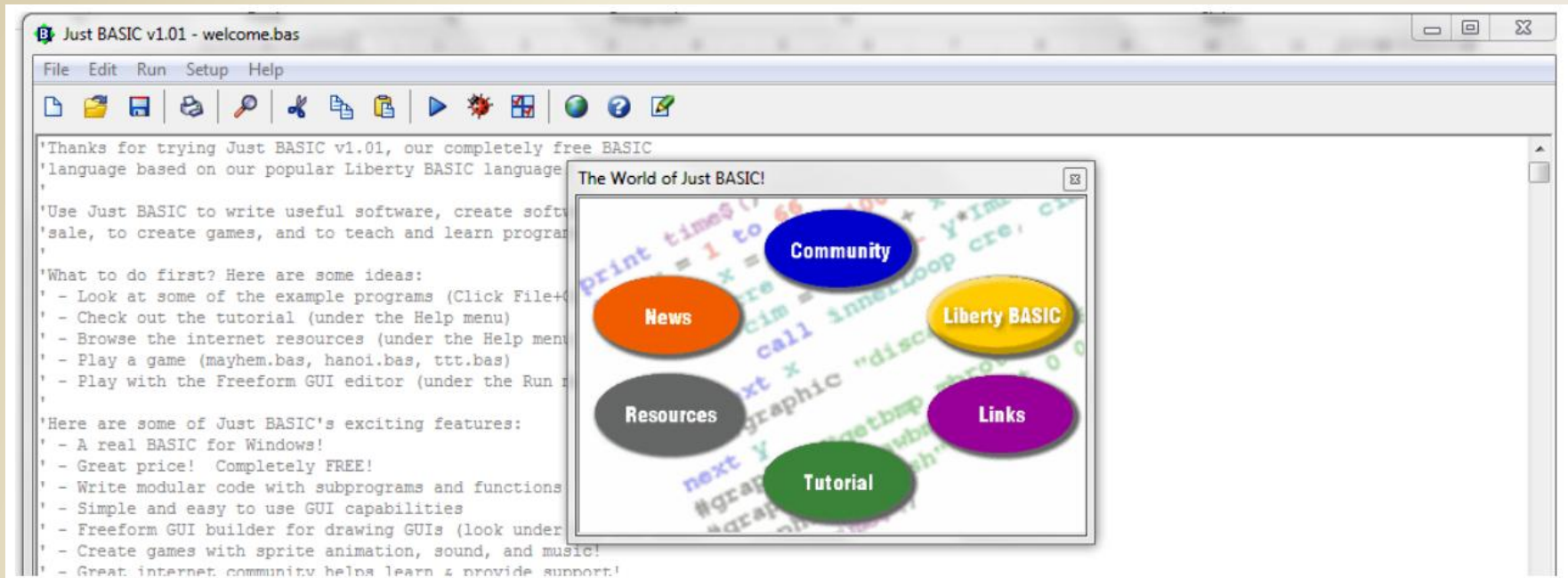


Just BASIC Programming



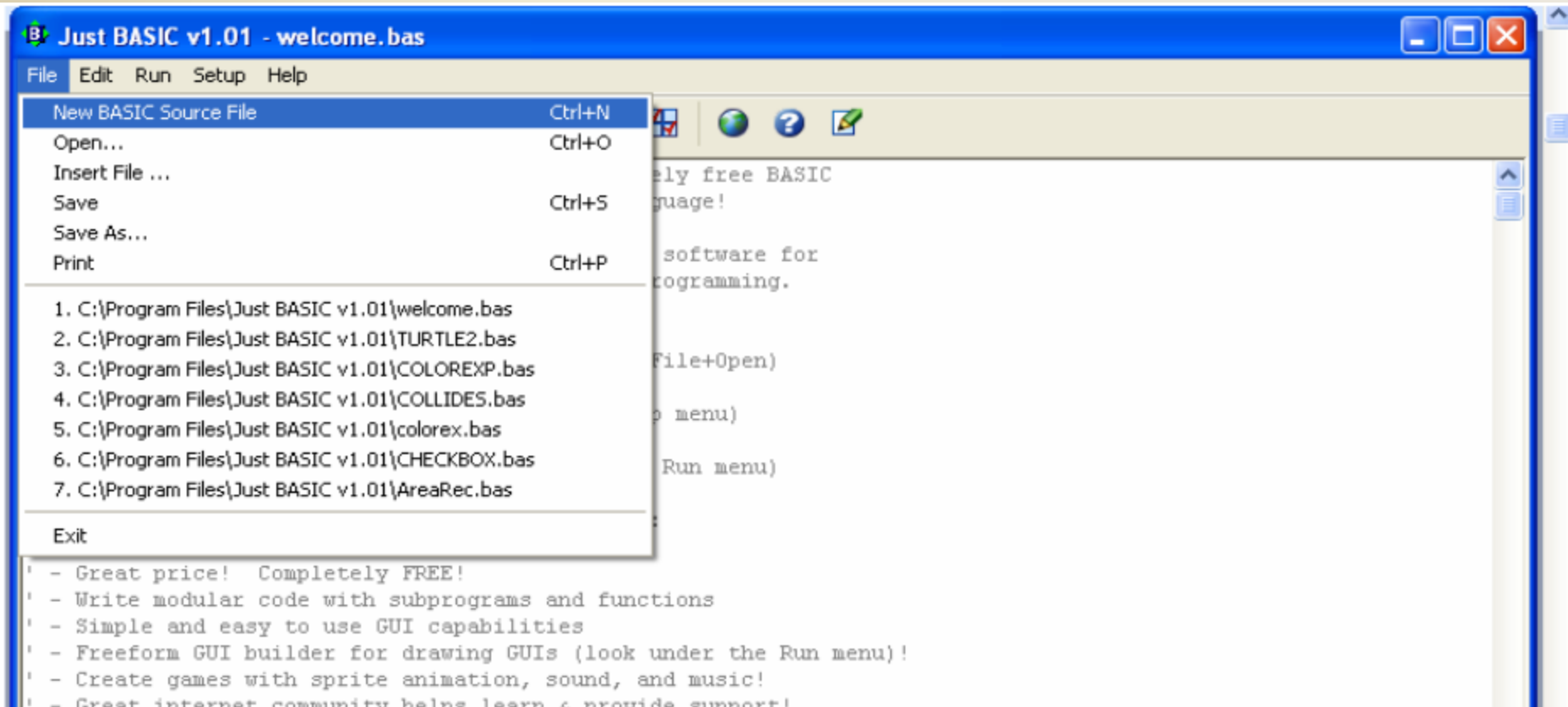
Just BASIC Programming

1. Click Start \implies Program \implies Just Basic V1.01. The window



Just BASIC Programming

2. To create new project, select File \Rightarrow New BASIC Source



General Programming Instructions

- 1) Any data either numeric (any number) or alphabetic must be stored in a variable such that:

$$\text{Variable} = \text{Data}$$

Notes:

- A is different from a.
- It is not correct to write $5 = \text{ahmed}$, but it is correct to write $\text{ahmed} = 5$.
- It is not correct to write $1A = 15$, but it is correct to write $A1 = 15$.
- To store an alphabetic data, the variable name should be followed by \$ such as:
 $\text{Ahmed\$} = \text{"string variables up to 2 million characters"}$.

General Programming Instructions

2) Variables must be defined before using it in an operation. For example, it is correct to write:

$$A = 5$$

$$B = 6$$

$$\text{Sum} = A + B$$

But, it is not correct to write:

$$\text{Sum} = A + B$$

$$A = 5$$

$$B = 6$$

General Programming Instructions

3) The instructions and library functions must be correctly written as specified by the language.

Arithmetic Operators in Just Basic

4) Arithmetic operators are as follows:

+	addition
-	subtraction
*	multiplication
/	division
^	power

General Programming Instructions

5) The priority in expression evaluation is:

- () expressions within parentheses are evaluated first
- ^ exponents are evaluated next
- * / multiplication and division are evaluated next
- + - addition and subtraction are evaluated last

Arithmetic Operators in Just Basic

Examples:

print 2 + 3

'addition

print 6 - 2

'subtraction

print 4 * 7

'multiplication

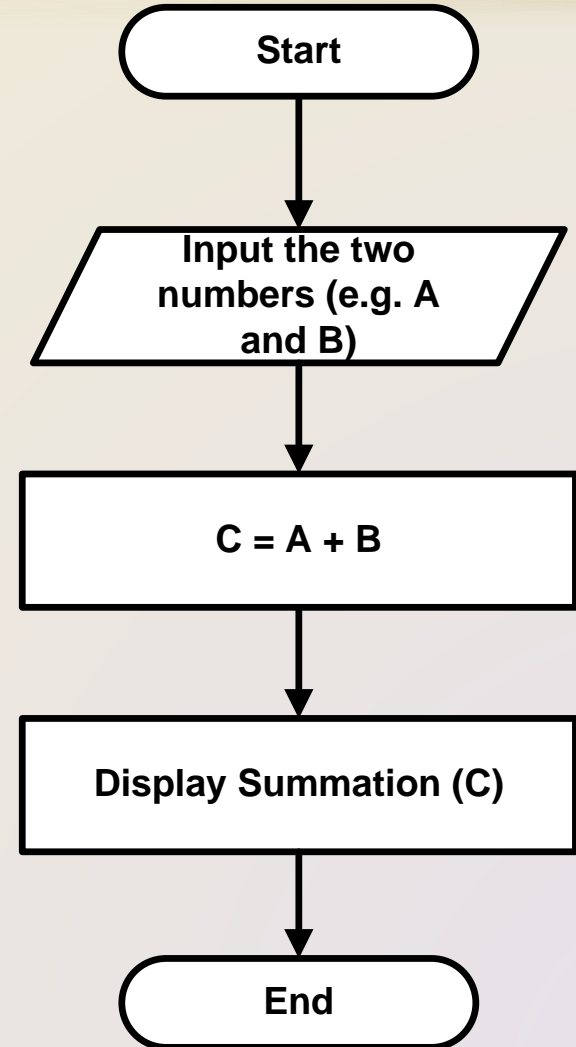
print 9 / 3

'division

print 2 ^ 3

'power - (two to the third power)

Example 5-1: Write a "Just Basic" program and draw the flowchart to add two numbers.



Example 5-1: Write a "Just Basic" program and draw the flowchart to add two numbers.

```
A = 2           ' The first variable.  
B = 3           ' The second variable.  
C = A + B       ' The variable at which summation is stored.  
Print "The sum of numbers are"; " ";C  
End
```

Example 5-1: Write a "Just Basic" program and draw the flowchart to add two numbers.

```
input "Enter your first number "; " "; A
input "Enter your second number"; " "; B
C = A + B
print "The sum of the numbers are"; " "; C
End
```