

Problem Solving and Programing

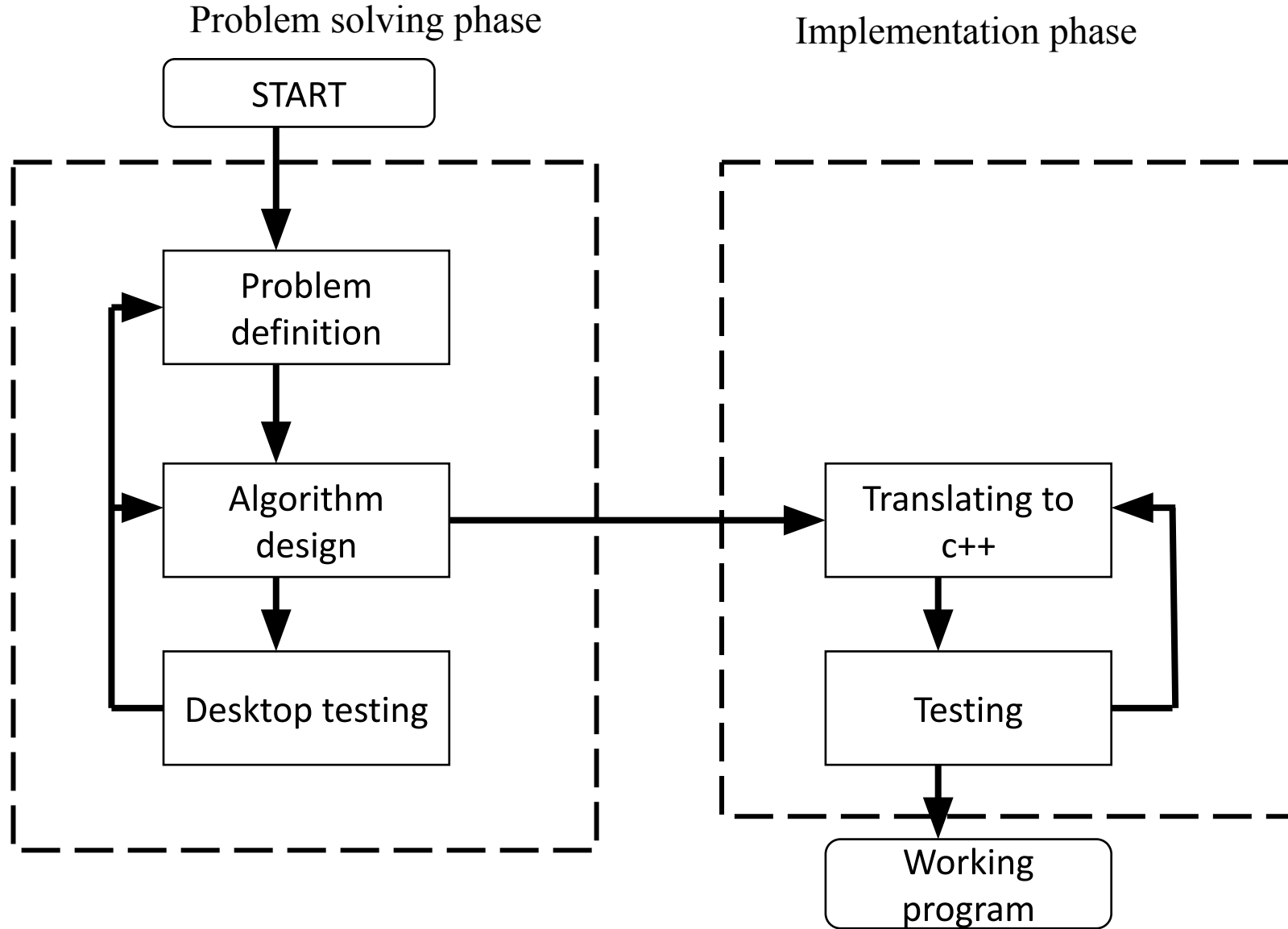
Algorithmic approach

An algorithm is a sequence of precise instructions that leads to a solution

Algorithm that determines how many times a name occurs in a list of names:

1. Get the list of names
2. Get the name being checked
3. Set a counter to zero
4. Do the following for each name on the list:
 compare the name on the list to the name being checked,
 and if the names are the same, then add one to the counter.
5. Announce that the answer is the number indicated by the counter

Program



Origins of the C++ Language

- There is a B programming language

- BCPL

- C language is derived from B language

 - Dennis Ritchie AT& T Bell Laboratories in 1970s

 - It was first used for writing and maintaining UNIX operating system

 - High Level language

- C++ derived from C language

 - Bjarne Stroustrup AT& T Bell Laboratories in 1980s

C++

Products

- There are several C++ products available

The logo for Turbo C++ is a yellow rectangular banner with a 3D effect, featuring a light green shadow on the left and right sides. The text "Turbo C++" is written in red on the banner.

Turbo C++

The logo for Borland C++ is a yellow rectangular banner with a 3D effect, featuring a light green shadow on the left and right sides. The text "Borland C++" is written in red on the banner.

Borland C++

The logo for Zortech C++ is a yellow rectangular banner with a 3D effect, featuring a light green shadow on the left and right sides. The text "Zortech C++" is written in red on the banner.

Zortech C++

The logo for AT & T C++ is a yellow rectangular banner with a 3D effect, featuring a light green shadow on the left and right sides. The text "AT & T C++" is written in red on the banner.

AT & T C++

The logo for Sun C++ is a yellow rectangular banner with a 3D effect, featuring a light green shadow on the left and right sides. The text "Sun C++" is written in red on the banner.

Sun C++

include statement

- The # include statement is the first statement in any C++ program.
- The # notation at the beginning of the statement indicates that the following instruction is a special instruction to C++.
- It establishes a reference to the header file.
- It is termed as a preprocessor directive.

Simple C++ Program

```
#include<iostream>
using namespace std;
int main()
{
    "the program starts here"
    return 0;
}
```

It tells the compiler where to find the information about certain items used in your program

It is the name of the library that contains the definitions of the routines that handle input from the keyboard and output to the screen

The names defined in iostream are to be interpreted in the standard way

“the program starts here”

Cascading I / O Operators

```
#include <iostream.h>

void main(void)
{
    int age = 0 ;
    float salary = 0.00 ;

    // Cascaded input

        cout << "\nEnter your age      : " ;
        cin >> age ;
        cout << "\nEnter your salary : " ;
        cin >> salary ;

    // Cascaded output

        cout << "\nMy age is " << age ;
        cout << "\nMy salary is " << salary ;
}
```


Formatting In C++ - 1

- Output in C++ can be formatted using special characters associated with the cin and cout statements.
- Example :

```
#include <iostream.h>

void main(void)
{
    cout << "This line uses the end line operator" << endl ;
    cout << "Default stream width = " << cout.width() << endl ;
    cout << "This displays the default stream width - " ;
    cout << "[" << "A" << "]" << endl ;

    cout << "This displays the modified field width - " ;
    cout << "[" ;
    cout.width(10) ;
    cout << "A" ;
    cout << "]" ;
}
```

Formatting In C++ - 2

- Output :

```
This line uses the end line operator
```

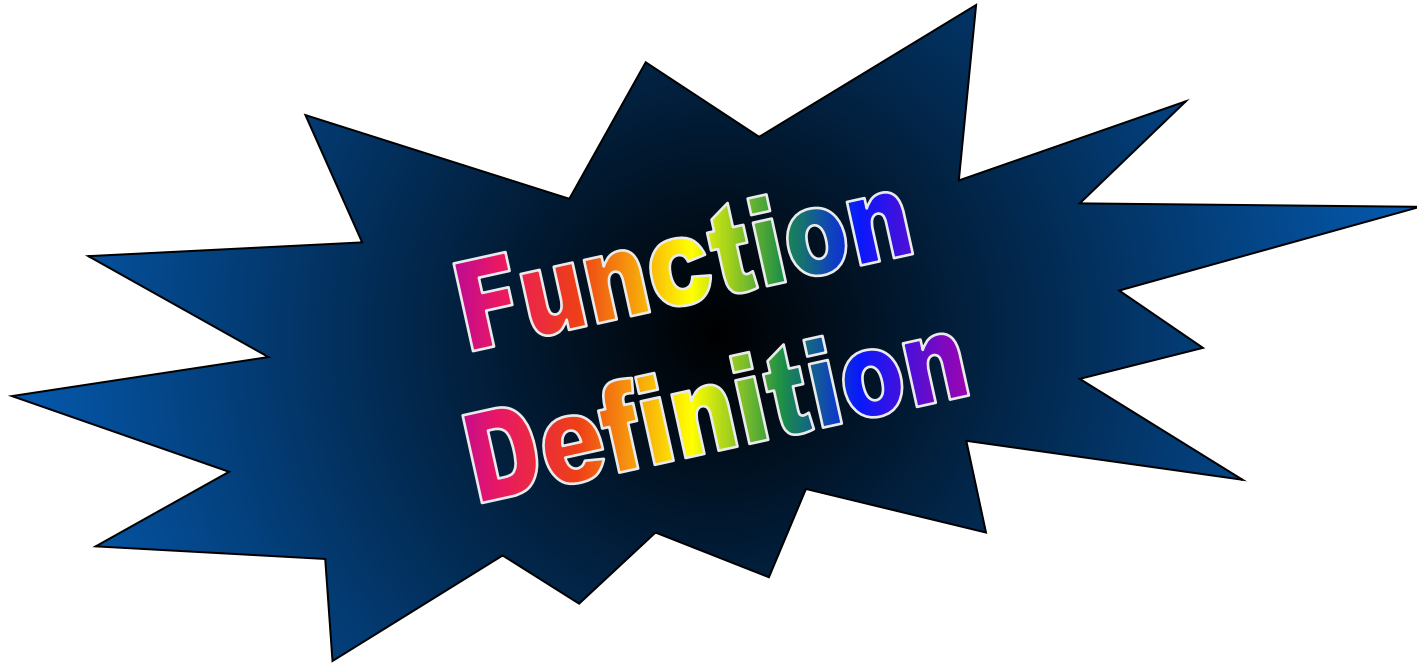
```
Default stream width = 0
```

```
This displays the default stream width - [A]
```

```
This displays the modified field width - [          A]
```

Certain Essentials - 1

- The essential components of a program construct are -



Functions are defined to break up large tasks into smaller tasks

Certain Essentials - 2



Delimiters { ... } are used to delimit blocks of code in loops and functions.

Certain Essentials - 3



Each code instruction in C++ must be terminated with a semi-colon (;).

Certain Essentials - 4



Comments can be single line comments (//) or multiple line comments (/* */)