

Computer Programming 143 – Lecture 5

Structured Program Development III

Faculty of Engineering



Quick summary

Recap so far:

```
if (condition)
{
    // this happens when true
}
else
{
    // this happens when false
}
```

```
while (condition)
{
    // repeats as long as true
}
```

3.10 Nested Control Structures I

Problem statement

Develop a program that would count and display the number of students that have passed and the number of students that have failed from a list of exam results for 10 students. If more than 8 students have passed, display "Bonus to instructor!"



Top-level pseudocode

Analyse exam results and decide if instructor should receive a bonus

First refinement

Initialise variables

Input the 10 exam grades and count passes and failures

Display a summary of the exam results and decide if instructor should receive a bonus

Assignment operator

- + * / %

Var = var statement; ↗ ==
var = statement; ↖

E.g. total = total + grade * 100; ↗ ==
total += grade * 100; ↖

C

C ++

C # C #

j 6

9.1-9.11 Formatted Input/Output I

mychar

0110 0001	'a'
0110 0010	'b'

printf statement using different types

Declaration&assignment	printf Statement	Output
int myint = 45;	printf("%d", myint);	45
float myfloat = 79.54;	printf("%f", myfloat);	79.540001
float myfloat = 79.54;	printf("%e", myfloat);	7.954000e+001
char mychar = 'a';	printf("%c", mychar);	a
char mychar = 'a';	printf("%d", mychar);	97
char mychar = 98;	printf("%c", mychar);	b
char mychar = 98;	printf("%d", mychar);	98
char mystring[] = "Hello";	printf("%s", mystring);	Hello

Refer to Chapter 9 for more printing options

Homework

$x = 1;$

passes

$\boxed{\emptyset}$

int passes; = 0;
 $\xrightarrow{+1}$
passes = passes + 1;

- ① Study Sections 3.10-3.12 in Deitel & Deitel
- ② Chapter 9.1 - 9.11 in Deitel & Deitel
- ③ Do Self Review Exercises 3.2, 3.3, 3.6-3.8 in Deitel & Deitel
- ④ Do Exercises 3.10(c)&(d), 3.29 in Deitel & Deitel