**ITEC 113 Algorithms and Programming Techniques Lab 2 (Leture 2 Exercises)**

# Task 1 Read a number from keyboard and print twice that number on screen

**Desired output:**

Please enter a number :

10

The result is : 20

***Note: The values shown in blue font are entered from the keyboard***

**AAnalysis**

Input: num

Process: result🡨2\*num Output : result

**AAlgorithm**

|  |  |
| --- | --- |
| Flowchart | Pseudocode |
|  | Display “Please Enter a number” Input num result 2\*numDisplay result

|  |  |
| --- | --- |
|  | *We need to declare two variables : num and result* |
|  | *We assume the user* *will enter only integer numbers and twice an integer is another integer. Therefore data type of these variables is INT* |

 |

# Task 1 Continued

**CC Program**

|  |
| --- |
| #include ....{} |

**Ooutput:**



**Task 2: Read a number (cgpa) from keyboard. If the number is greater than or equal to 2.00, display ‘Pass’.**

**D**

**D**

**D**

**e**

**e**

**e**

**s**

**s**

**s**

**i**

**i**

**i**

**r**

**r**

**r**

**e**

**e**

**e**

**d**

**d**

**d**

**O**

**O**

**O**

**u**

**u**

**u**

**t**

**t**

**t**

**p**

**p**

**p**

**u**

**u**

**u**

**t**

**t**

**t**

**:**

**:**

**:**

Alternatively

Please enter

your cg

pa

 :

1.25

Please enter

your cgpa

 :

2.82

Pass

***Note: The values shown in blue font are entered from the keyboard***

**AAnalysis**

Input: cgpa

Process: Check if cgpa> 2.00 print “pass” Output : “Pass”

**Algorithm**

|  |  |
| --- | --- |
| Flowchart | Pseudocode |
| start“Pass”EndcgpaCgpa>2.00No“Please enter your cgpa”Yes | Display “Please enter your cgpa”Input cgpaIf cgpa >= 2.00Display “Pass”End if; |

# Task 2 Continued

**C**

**C Program**

#include...
{

}

**Output:**

# User enters a number that is less than 2.00



# Alternative Input : User enters a number that is greater than, or equal to 2.00



**Task 3: Read a number (cgpa) from keyboard. If the number is greater than or equal to 2.00, display ‘Pass’, otherwise display ‘Fail’.**

**D**

**D**

**D**

**e**

**e**

**e**

**s**

**s**

**s**

**i**

**i**

**i**

**r**

**r**

**r**

**e**

**e**

**e**

**d**

**d**

**d**

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Alternative 3

Alternative 2

Alternative 1

Please enter

your cgpa

 :

1.25

Fail

Please enter

your cgpa

 :

2

.25

Pass

Please enter

your cgpa

 :

3

.25

Pass

***Note: The values shown in blue font are entered from the keyboard***

**Analysis**

Input: cgpa

Process: Check if cgpa>= 2.00 print “pass”, otherwise print “fail” Output : “Pass” or “Fail”

**AAlgorithm**

|  |  |
| --- | --- |
| Flowchart | Pseudocode |
| start“Pass”EndcgpaCgpa>2.00“FailNo“Please enter your cgpa”Yes | Display “Please enter your cgpa”Input cgpaIf cgpa >= 2.00Display “Pass”Else  Display “Fail”End if; |

**CC Program**

|  |
| --- |
| #include.....{} |

**O**

**output:**

# User enters a number that is less than 2.00



# Alternative Input: User enters a number that is greater than or equal to 2.00



**Task 4: Read a number (cgpa) from keyboard. If the number is greater than or equal to 3.00 display ‘Honor student’, if the number is less than 3.00 but greater than 2.00, display ‘Pass’, otherwise display ‘Fail’.**

**D**

**D**

**D**

**e**

**e**

**e**

**s**

**s**

**s**

**i**

**i**

**i**

**r**

**r**

**r**

**e**

**e**

**e**

**d**

**d**

**d**

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**:**

Alternative 3

Alternative 2

Alternative 1

Please enter

your cgpa

 :

1.25

Fail

Please enter

your cgpa

 :

2

.25

Pass

Please enter

your cgpa

 :

3

.25

Honor Student

***Note: The values shown in blue font are entered from the keyboard***

**Analysis**

Input: cgpa

Process: Check if cgpa>= 2.00 print “pass”, otherwise print “fail” Output : “Pass” or “Fail”

**Algorithm**

|  |  |
| --- | --- |
| Flowchart | Pseudocode |
| start“Fail”EndcgpaCgpa>3.00No“Honor Student”YesCgpa>2.00“Pass”Yes“Please enter your cgpa:”No | Display “Please enter your cgpa”Input cgpaIf cgpa >= 3.00 thenDisplay “Honor Student”Else if cgpa >= 2.00 then Display “Pass”Else Display “Fail”End if; |

**C Program**

|  |
| --- |
| #include { } |

**Ooutput:**

# User enters a number that is greater than or equal to3.00



# Alternative Input: User enters a number that is less than 3.00 but greater than or equal to 2.00



# Alternative Input: User enters a number that is less than 2.00

