

**Course:** Foundation Certificate in Higher Education

**Unit Code and Description:** DOC 333 Introduction to Programming in Python – P1

**Lecturer:** Mr. Sudharshana Welihinda

**Assignment Number:** 01

**Assignment Typ**e: Individual Coursework

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# **Abstract**

This report brings out the solution for two common problems arising in the present society. Monitoring the body temperature of a patient on daily basis. it is being showed here about how 10 recordings of the body temperature of the patient on a particular day is captured using a python program. The second problem is checking whether a given date by the user is a valid date and if it is yes then print the following date else to output as date is invalid.

# **Acknowledgement**

# I would like to give away my sincere thanks firstly to my lecturers Mr., Sudharshan Welihinda, Ms. Tharushi Samarasinghe, Ms. Salitha Dinushika who supported me to achieve the success of the coursework of this semester. I would like to thank my parents and friends who supported me when I was confused during the time of the coursework regarding the problems which were given to find solutions.

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# **Question 01**

A group of medical students were monitoring the body temperature of a patient daily basis. Students captured 10 temperature readings in Celsius on a particular day.

1. Write an Algorithm to input these ten values and get the average temperature for that day. if the average temperature value is in between 970 Fahrenheit and 990 Fahrenheit then display the message “Your body temperature is normal…”. If it is more than 100.40 Fahrenheit then display the message “You have a fever caused by an infection or illness…”.

2. Convert the above algorithm (written in part (1)) to a Python program to output the desired results

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## **Problem understanding**

Note down the body temperature values of the patient on the particular day in Celsius and find the average body temperature of the patient throughout the day and display it in Fahrenheits value. Display the message “Your body temperature is normal…” if the temperature is in between 97 degree and 99-degree Fahrenheits. If the body temperature is more than 100.4-degree Fahrenheits display the message as “You have a fever caused by an infection or illness…” else display as “Your body temperature is abnormally low…”.

## **Algorithm**

1. start
2. create variables.
3. Read the 10 captured recordings of the body temperature of the patient.
4. Calculate Average Temperature = Sum of 10 captured recordings/10
5. Calculate Average Temperature = (Average Temperature \*9/5) +32
6. Display Temperature in Fahrenheits
7. If Average Temperature ≥ 97 and Average Temperature ≤ 99
8. Display “Your body temperature is normal…”
9. If Average Temperature ≥ 100.4
10. Display “You have a fever caused by an infection or illness…”
11. If Average Temperature ≥ 99.1 and Average Temperature ≤100.3
12. Else display “Your body temperature is abnormally low…”.
13. End

## **Python Code**

#..DOC 333 Introduction to Programming Coursework...

#..Question..1

#..Initialize Variables..

Temp\_Read\_1=0

Temp\_Read\_2=0

Temp\_Read\_3=0

Temp\_Read\_4=0

Temp\_Read\_5=0

Temp\_Read\_6=0

Temp\_Read\_7=0

Temp\_Read\_8=0

Temp\_Read\_9=0

Temp\_Read\_10=0

Avg\_Temp=0

#..Input from user..

Temp\_Read\_1=float(input("Enter first reading of temperature of the patient(in celsius): "))

Temp\_Read\_2=float(input("Enter second reading of temperature of the patient(in celsius): "))

Temp\_Read\_3=float(input("Enter third reading of temperature of the patient(in celsius): "))

Temp\_Read\_4=float(input("Enter fourth reading of temperature of the patient(in celsius): "))

Temp\_Read\_5=float(input("Enter fifth reading of temperature of the patient(in celsius): "))

Temp\_Read\_6=float(input("Enter sixth reading of temperature of the patient(in celsius): "))

Temp\_Read\_7=float(input("Enter seventh reading of temperature of the patient(in celsius): "))

Temp\_Read\_8=float(input("Enter eighth reading of temperature of the patient(in celsius): "))

Temp\_Read\_9=float(input("Enter ninth reading of temperature of the patient(in celsius): "))

Temp\_Read\_10=float(input("Enter tenth reading of temperature of the patient(in celsius): "))

#..Process

Avg\_Temp=(Temp\_Read\_1+Temp\_Read\_2+Temp\_Read\_3+Temp\_Read\_4+Temp\_Read\_5+Temp\_Read\_6+Temp\_Read\_7+Temp\_Read\_8+Temp\_Read\_9+Temp\_Read\_10)/10

Avg\_Temp=(Avg\_Temp\*9/5)+32

#..Output

print("Average body temperature of the patient is: ",format(Avg\_Temp,".2f"),"Fahrenheit")

#..Condition

if Avg\_Temp>=97 and Avg\_Temp<=99:

print("Your body temperature is normal...")

elif Avg\_Temp>=100.4:

print("You have a fever caused by an infection or illness...")

elif Avg\_Temp>=99.1 and Avg\_Temp<=100.3:

print("Your body temperature is high")

else:

print("Your body temperature is abnormally low...")

## **Test Cases**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Enter the Body Temperature reading | Expected Results | Obtained Results | Remark |
| Test case 1 | 30.2  32.4  35.6  34.5  32.1  32.0  29.0  27.0  36.7  38.9 | Average body temperature of the patient is: 91.11 Fahrenheit  Your body temperature is abnormally low... | Average body temperature of the patient is: 91.11 Fahrenheit  Your body temperature is abnormally low... | Pass |
| Test case 2 | 32.1  34.3  28..7  23.6  34.5  29.9  28.9  28.7  29.8  28.7 | Average body temperature of the patient is: 85.86 Fahrenheit  Your body temperature is abnormally low... | Average body temperature of the patient is: 85.86 Fahrenheit  Your body temperature is abnormally low... | Pass |
| Test case 3 | 35.4  36.6  37..6  36.8  35.9  35.6  34.9  37  36.6  37 | Average body temperature of the patient is: 97.41 Fahrenheit  Your body temperature is normal... | Average body temperature of the patient is: 97.41 Fahrenheit  Your body temperature is normal... | Pass |
| Test case 4 | 40.1  39,6  38,7  36,8  39  37,8  36,8  37,9  39.7  37.6 | Average body temperature of the patient is: 101.12 Fahrenheit  You have a fever caused by an infection or illness... | Average body temperature of the patient is: 101.12 Fahrenheit  You have a fever caused by an infection or illness... | Pass |
| Test case 5 | 38.7  39.4  38.6  36.8  37.4  36.6  37.2  39.6  37.2  37.4 | Average body temperature of the patient is: 100.20 Fahrenheit  Your body temperature is high | Average body temperature of the patient is: 100.20 Fahrenheit  Your body temperature is high | Pass |

* 1. **Screenshots of Python program test cases**

# **Question 02**

Write a Python program to check whether a given date is valid date or not and to out put the following. • If the date is valid then the message “Date is Valid” otherwise the message “Date is Invalid”. • If the date is a valid date, then the next date.

• Get the inputs Year, Month, and Date separately.

• Use selection statements, i.e., if-else statements to check if the Date, Month, and the Year are valid.

• if the date is a valid date, then print the next date (Increment the date).

* 1. **Problem Understanding**

Create a program to find out whether the given date is valid or not. If the date entered is a valid one, print “date is valid” and print the following date from the given date else “print date is invalid” and terminate the program.

## **Algorithm**

Start

Create variables

Print year, month, date

If month>12

**6.3 Python Code**

#..DOC 333 Introduction to Programming Coursework...

#..Question..2

#..Initialize Variables..

Year=0

Month=0

Date=0

#..Inputs from user

Year=int(input("Enter year: "))

Month=int(input("Enter month: "))

Date=int(input("Enter date: "))

#..Condition

print(Year,".",Month,".",Date)

if(Month==1 or Month==3 or Month==5 or Month==7 or Month==8 or Month==10 or Month==12):

Date<=31

elif(Month==4 or Month==6 or Month==9 or Month==11):

Date<=30

else:

(Month==2)

if(Year%4==0 or Year%400==0):

Date<=29

else:

((Year%4==1) or (Year%400==1))

(Date<=28)

if(Month==1 or Month==3 or Month==5 or Month==7 or Month==8 or Month==10) and (Date<31):

Date=Date+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Month==1 or Month==3 or Month==5 or Month==7 or Month==8 or Month==10) and (Date==31):

Date=1

Month=Month+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Month==4 or Month==6 or Month==9 or Month==11) and (Date<30):

Date=Date+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Month==4 or Month==6 or Month==9 or Month==11) and (Date==30):

Date=1

Month=Month+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Month==2):

if(Year%4==1 or Year%400==1) and (Date<28):

Date=Date+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Year%4==0 or Year%400==0) and (Date<29):

Date=Date+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Year%4==1 or Year%400==1) and (Date==28):

Date=1

Month=Month+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

elif(Year%4==0 or Year%400==0) and (Date==29):

Date=1

Month=Month+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

else:

print("The date is invalid")

elif(Month==12 and Date==31):

Date=1

Month=1

Year=Year+1

print("The Date is valid")

print("The next date is: ",Date,"-",Month,"-",Year)

else:

print("The date is invalid")