LOVELY PROFESSIONAL UNIVERSITY

INT-108

PYTHON PROGRAMMING

PYTHON MINI PROJECT

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B. Tech (CSE)

PYTHON PROGRAM:

Q. CLOCK ANGLE PROBLEM

GIVEN TIME IN HH:MM FORMAT IN 24-HOUR NOTATION, CALCULATE THE SHORTER ANGLE BETWEEN THE HOUR AND MINUTE HAND IN AN ANALOG CLOCK.

SOURCE CODE

```
# Python program find angle between hour and minute hands

# Function to Calculate angle between hour hand and minute hand of a classic clock

h=int(input("Enter the hours,  \n"))
m=int(input("Enter the minutes,  \n"))
def calcAngle(h,m ):

       #validate the input):

        if (h == 12):
            h = 0
        if (m == 60):
            m = 0
            h += 1;
            if(h>12):
                   h = h-12;


        # Calculate the angles moved by hour and minute hands with reference to 12:00
        hour_angle = 0.5 * (h * 60 + m)
        minute_angle = 6 * m

        # Find the difference between two angles
        angle = abs(hour_angle - minute_angle)

        # Return the smaller angle of two possible angles
        angle = min(360 - angle, angle)

        return angle
print("The time enter by the user is  \n",h,":",m," hours")
print('Angle between the hour hand and minute hand of the clock is  \n',abs(calcAngle(h,m)),'degrees')



#code compiled by 12206298 DEVANSH SENGAR (RK22HKB55)
# PROJECT WORK FOR [INT-108]
```

OUTPUTS:

```
=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
11
Enter the minutes,
40
The time enter by the user is
 11 : 40  hours
Angle between the hour hand and minute hand of the clock is
 110.0 degrees

=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
3
Enter the minutes,
45
The time enter by the user is
 3 : 45  hours
Angle between the hour hand and minute hand of the clock is
 157.5 degrees

=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
7
Enter the minutes,
17
The time enter by the user is
 7 : 17  hours
Angle between the hour hand and minute hand of the clock is
 116.5 degrees

=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
4
Enter the minutes,
59
The time enter by the user is
 4 : 59  hours
Angle between the hour hand and minute hand of the clock is
 155.5 degrees
```

DEVA

HERE, WE CAN SEE THE ANGLE AS CORRESPONDING TO THE TIME.

11:40 hrs - 110.00 degrees

03:45 hrs - 157.50 degrees

07:17 hrs - 116.50 degrees

04:59 hrs - 155.50 degrees

```
= RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py
Enter the hours,
6
Enter the minutes,
00
The time enter by the user is
 6 : 0  hours
Angle between the hour hand and minute hand of the clock is
 180.0 degrees
>>
=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
9
Enter the minutes,
30
The time enter by the user is
 9 : 30  hours
Angle between the hour hand and minute hand of the clock is
 105.0 degrees
>>
=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
12
Enter the minutes,
00
The time enter by the user is
 12 : 0  hours
Angle between the hour hand and minute hand of the clock is
 0.0 degrees
>>
=== RESTART: C:\Users\devan\AppData\Local\Programs\Python\Python310\python project.py ==
Enter the hours,
5
Enter the minutes,
45
The time enter by the user is
 5 : 45  hours
Angle between the hour hand and minute hand of the clock is
 97.5 degrees
>>
```

HERE, WE CAN SEE THE ANGLE AS CORRESPONDING TO THE TIME.

06:00 hrs - 180.00 degrees

09:30 hrs - 105.00 degrees

12:00 hrs - 00.00 degrees

05:45 hrs - 97.50 degrees

RAW CODE

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          hour_angle = 0.5 * (h * 60 + m)
          minute_angle = 6 * m

          # Find the difference between two angles
          angle = abs(hour_angle - minute_angle)

          # Return the smaller angle of two possible angles
```

```
        angle = min(360 - angle, angle)


        return angle

print("The time enter by the user is  \n",h,":",m," hours")

print('Angle between the hour hand and minute hand of the clock is
\n',abs(calcAngle(h,m)),'degrees')
```

THANK YOU

DEVANSH SEN