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Q1:

Code:

```
from math import sqrt
# this function calculate the hypotenuse.
base = int(input("enter the base of triangle:"))
perpend = int(input("enter the perpendicular of triangle:"))
def hypo(side1=1, side2=1):
#    calculates the hypotenuse
   result= sqrt((side1**2)+(side2**2))
   return result
answer = hypo(base,perpend)
print(answer,"is the hypotenuse of given triangle.")
```

Output:

```
enter the base of triangle:4
enter the perpendicular of triangle:5
6.4031242374328485 is the hypotenuse of given triangle.
```

Q2:

Code:

```
# this programme checks whether the given year is a leap year or not
year = int(input('enter the year that you want to check:'))
def isLeap(year):
    if year % 4 ==0 and year % 100 != 0:
        print("This is a leap year")
    elif year % 100 ==0 and year % 400 == 0:
        print("This is a leap year")
    else:
        print("Sorry, this is not a leap year")

ans = isLeap(year)
```

Output:

```
enter the year that you want to check:1970
Sorry, this is not a leap year
```

Q3:

Code:

```
# this programme give us the largest odd number
# this takes three arguments and return us the largest odd number
def largest_odd(x,y,z):
    if (x % 2 and y % 2 and z % 2) != 0:
        print(max(x,y,z),"is greatest odd number")
    elif (x % 2 and y % 2) != 0 and z % 2 == 0:
        print(max(x,y),'is greatest odd number')
```

```
    elif (x % 2 and z % 2) != 0 and y % 2 == 0:
        print(max(x,z),'is greatest odd number')
    elif (y % 2 and z % 2) != 0 and x % 2 == 0:
        print(max(y,z),'is greatest odd number')
    elif (x % 2 and y % 2) == 0 and z % 2 != 0:
        print(z,'is greatest odd number')
    elif(x % 2 and z % 2) == 0 and y % 2 != 0:
        print(y,'is greatest odd number')
    elif(z % 2  and y % 2) == 0 and x % 2 != 0 :
        print(x,'is greatest odd number')
    else:
        print("none of them are odd")

largest_odd(111110,11110,433)
```

Output:

```
433 is greatest odd number
```

Q4:

Code:

```
sub1 = input('enter grade of first  subject: ')
sub1 = sub1.upper()
hour1 = float(input('enter credit hour of first subject:'))
sub2 = input('enter grade of second subject')
sub2 = sub2.upper()
hour2 = float(input('enter credit hour of second subject'))
sub3 = input('enter grade of third subject')
sub2 = sub2.upper()
```

```
hour3= float(input('enter credit hour of third subject'))




if sub1  == 'A':
   sub1 = 4.0
elif sub1  == 'A-':
   sub1 = 3.67
elif sub1  == 'B+':
   sub1 = 3.33
elif sub1  == 'B':
   sub1  = 3.0
elif sub1  == 'B-':
   sub1  = 2.67
elif sub1  == 'C+':
   sub1  = 2.33
elif sub1  == 'C':
   sub1  = 2.0
elif sub1  == 'C-':
   sub1  = 1.67
elif sub1  == 'D+':
   sub1  = 1.33
elif sub1  == 'D':
   sub1  = 1.0
elif sub1  == 'F':
   sub1  = 0
else:
   print("enter correct Grade")
if sub2  == 'A':
```

```
    sub2 = 4.0
elif sub2  == 'A-':
    sub2 = 3.67
elif sub2  == 'B+':
    sub2 = 3.33
elif sub2  == 'B':
    sub2  = 3.0
elif sub2  == 'B-':
    sub2  = 2.67
elif sub2  == 'C+':
    sub2  = 2.33
elif sub2  == 'C':
    sub2  = 2.0
elif sub2  == 'C-':
    sub2  = 1.67
elif sub2  == 'D+':
    sub2  = 1.33
elif sub2  == 'D':
    sub2  = 1.0
elif sub2  == 'F':
    sub2  = 0
else:
    print("enter correct Grade")
if sub3  == 'A':
    sub3 = 4.0
elif sub3  == 'A-':
    sub3 = 3.67
elif sub3  == 'B+':
    sub3 = 3.33
```

```
elif sub3  == 'B':
   sub3  = 3.0
elif sub3  == 'B-':
   sub3  = 2.67
elif sub3  == 'C+':
   sub3  = 2.33
elif sub3  == 'C':
   sub3  = 2.0
elif sub3  == 'C-':
   sub3  = 1.67
elif sub3  == 'D+':
   sub3  = 1.33
elif sub3  == 'D':
   sub3  = 1.0
elif sub3  == 'F':
   sub3  = 0
else:
   print("enter correct Grade")

result = (sub1*hour1 + sub2*hour2 + sub3*hour3)
totalHour = (hour1 + hour2 + hour3)
gpa = result / totalHour
print("your GPA is: ", gpa)
```

Output:

```
enter grade of first  subject: A
enter credit hour of first subject:3
enter grade of second subjectB+
enter credit hour of second subject3
enter grade of third subjectC
enter credit hour of third subject3
your GPA is:  3.1100000000000003
```