9. Write a program to evaluate a polynomial using brute-force based algorithm and using Horner's rule and compare their performances

```
import time
import math
def bruteforce(coef,n,x):
    sum=0.0
    for i in range(n+1):
        sum+=coef[i]*math.pow(x,i)
    return sum

def hornersrule(coef,n,x):
    result=coef[n]
    for i in range(n-1,-1,-1):
        result=result*x+coef[i]
    return result

n=int(input("Enter the degree of the polynomial:"))
coef=[0]*(n+1)
print("Enter the coefficients from highest degree to lowest:")
for i in range(n,-1,-1):
    coef[i]=int(input())
x=float(input("Enter the value of x:"))
start=time.time()
brute_force_result=bruteforce(coef,n,x)
end=time.time()
time_used=end-start
print(f"Brute force result:{brute_force_result:.2f},time used:{time_used:.6f} seconds")
start=time.time()
horners_rule_result=hornersrule(coef,n,x)
end=time.time()
time_used=end-start
print(f"Horner'srule result:{horners_rule_result:.2f},time used:{time_used:.6f} seconds")
```

Output 1

```
Enter the degree of the polynomial:4
Enter the coefficients from highest degree to lowest:
5
3
-5
4
1
Enter the value of x:2
Brute force result:93.00,time used:0.000000 seconds
Horner'srule result:93.00,time used:0.000996 seconds
```

Output 2

```
Enter the degree of the polynomial:3
Enter the coefficients from highest degree to lowest:
2
-6
2
-1
Enter the value of x:3
Brute force result:5.00,time used:0.000000 seconds
Horner'srule result:5.00,time used:0.000997 seconds
```