**IS EXPERIMENT 5**

**Code:**

def power(a, b, p):

if b == 1:

return a

else:

return pow(a, b) % p

def main():

P = int(input("Enter the value of P (a prime number): "))

G = int(input("Enter the value of G (a primitive root for P): "))

print("The value of P:", P)

print("The value of G:", G)

a = int(input("Enter the private key a for Alice: "))

print("The private key a for Alice:", a)

x = power(G, a, P)

b = int(input("Enter the private key b for Bob: "))

print("The private key b for Bob:", b)

y = power(G, b, P)

ka = power(y, a, P)

kb = power(x, b, P)

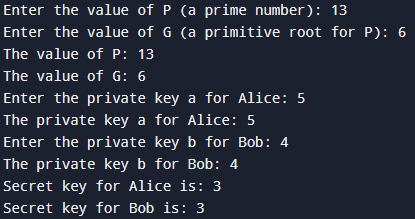
print("Secret key for Alice is:", ka)

print("Secret key for Bob is:", kb)

if \_\_name\_\_ == "\_\_main\_\_":

main()

**Output:**

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