A. You are asked to write a library source code, NPV.cpp, that performs the following tasks:

1. It declares a global variable, gRiskfreeRate, and initialize it to zero.
2. A function, riskfree_NPV, that calculates the Net Present Value of a riskfree cash payment amount, N, at a future time, T, measured in fraction of a year. (If you are not familiar with NPV, you need to look up how to calculate NPV, using continues compounding)
3. A function, risky_NPV, that calculates the Net Present Value of a risky cash payment, N, at a future time, T. There is a payment default probability, alpha, per year. (To get the risky NPV, you will need to discount the payment with *interest rate = riskfree_rate + alpha)*

B. Write a main program to test your library. You need to perform the following:
1. Set the gRiskfreeRate to 0.035 using *direct assignment*
2. Calculate the riskfree NPV of a cash payment of $1000 in 1.5 year of time, using the function call:

$$\text{riskfree\_NPV}(1000, 1.5)$$

3. Calculate the risky NPV of a cash payment of $1000 from a CCC rated company in 1 year of time, using the default probability *alpha=0.15* per year, using the function call:

$$Risky\_NPV(1000, 1.0, 0.15)$$

4. Print the result of function calls in 2. and 3. on screen

C. Take a screen shot of part B. Submit all source codes along with the screen shot online.