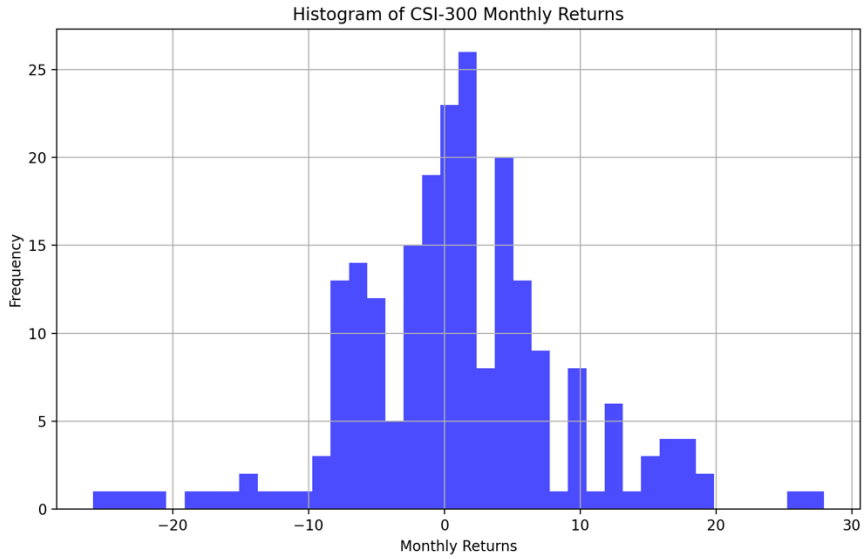
Problem1:

```
count       224.000000
mean          0.908645
std           8.071168
min         -25.850520
25%          -3.767548
50%           0.608092
75%           4.997417
max          27.929020
skewness      0.015320
kurtosis      1.510019
Name: Clsindex, dtype: float64
```

- **Mean**: The average monthly return is about 0.91, which indicates that on average, there's a positive return.
- **Standard Deviation**: The standard deviation is about 8.07, suggesting there's substantial variability in the monthly returns.
- **Skewness**: The skewness is close to zero (0.015320), suggesting the distribution of returns is quite symmetrical.
- **Kurtosis**: The kurtosis is 1.51, which is less than 3, the kurtosis of a normal distribution, indicating that the distribution is platykurtic (has lighter tails than a normal distribution).



(c):

- The histogram does not show a clear bell-shaped curve typically associated with a normal distribution. The distribution seems to be fairly symmetrical, as suggested by the skewness value being close to zero. In a perfectly normal distribution, the skewness is zero.

- The kurtosis value is less than 3, which is a characteristic of a platykurtic distribution, suggesting that the distribution of the CSI 300 monthly returns has thinner tails and a lower peak than the normal distribution.

The results of these tests would provide a p-value to formally evaluate the normality assumption. However, based solely on the provided skewness and kurtosis, along with the visual interpretation of the histogram, it seems that the CSI 300 monthly returns do not perfectly follow a normal distribution but are rather close to it with a slightly platykurtic tendency.

These deviations have important implications for risk management and investment strategies, as normal distribution assumptions underlie many financial models. The slightly platykurtic nature of the CSI 300 distribution implies less extreme returns than would be expected with a normal distribution, which could affect the pricing of risk and portfolio optimization.

Problem2:

Table 2:

Decile	Alpha	Alpha t-value	Alpha p-value	Beta	Beta t-value	Beta p-value	R-squared
1	-0.001207	-30.583070	4.627458e-202	0.800200	645.014878	0.000000e+00	0.937425
2	-0.000010	-0.296414	7.669162e-01	0.884410	872.658879	0.000000e+00	0.964492
3	0.000273	11.068426	2.043854e-28	0.895669	1157.893678	0.000000e+00	0.979480
4	0.000394	15.557746	2.368351e-54	0.949537	1192.936470	0.000000e+00	0.980498
5	-0.000123	-5.922529	3.207089e-09	1.001526	1536.416025	0.000000e+00	0.988227
6	-0.000004	-0.166591	8.676927e-01	1.033510	1392.389527	0.000000e+00	0.985568
7	-0.000212	-9.530154	1.691419e-21	1.053349	1505.291328	0.000000e+00	0.987642
8	-0.000258	-9.593089	9.230661e-22	1.087119	1283.960415	0.000000e+00	0.983230
9	0.000381	14.353814	1.472550e-46	1.099322	1318.011384	0.000000e+00	0.984049
10	-0.000996	-28.633740	9.534357e-178	1.145450	1046.475309	0.000000e+00	0.975153

ocessing completed.

The Table 2 above shows results that are in accordance with the original paper:

1. the β_p values of the portfolios are similar, mostly around 1, and their significance levels are all approximately 0, which indicates that stock returns are significantly influenced by stock market returns.
2. 70% of the portfolios have significant α_p, so the null hypothesis is rejected; meanwhile, the coefficient of determination R^2 does not increase with the increase of β_p, which indicates that stock returns are affected by other factors besides systematic risk.

Table 3:

Gamma_0	Gamma_1	t-value_Gamma_0	t-value_Gamma_1	R-squared	F-statistic	P-value
-0.001348	0.002956	-1.362081	2.988669	0.527526	8.932144	0.017369

Table 3 shows a similar result as the original paper, but a slightly different.

1. The R^2 is only 0.527526, which is an average fit while $\gamma_1 = 0.002956$. The t- statistics of γ_1 shows that the return is significantly positively correlated with the systematic risk, indicating that the return increases with the risk, which is consistent with the CAPM model;
2. However, there is no evidence to show that γ_0 is significantly different from zero, which can not show that there are factors other than systematic risk. This might because of with the improvement of regulations and people's financial knowledge, market efficiency has significantly improved