Q3 Methodology:

Instruments & Conventions:

Deposits: We use deposit rates starting from SWD (one week) onwards. The day count convention for deposits is Act/360.

IRS: We'll use IRS rates with standard market conventions: fixed leg with 30/360 day count and annual payments, while the floating leg follows EURIBOR conventions (Act/360).

Spot Date:

With a 2-day spot lag from the trade date (November 24, 2024), our spot date is November 26, 2024.

Curve Construction:

We will build three independent yield curves using QuantLib’s built-in helpers:

One with linear interpolation on swap rates,

One with constant forward interpolation,

One with cubic spline interpolation.

We’ll use the default solver/calibration settings provided by QuantLib.

Outputs:

For each curve, we’ll generate:

A table and plot of discount factors versus maturity.

A table and plot of spot (zero) rates versus maturity.

A table and plot of forward rates versus maturity.

The output range covers the entire term structure—from the earliest usable instrument (SWD deposit) up to the longest maturity (60Y IRS).

Generally, you would use the deposit rate for the 1‑year maturity and not the swap rate. Deposit rates are typically viewed as the more direct, liquid measure for short-term funding costs, while swap rates are used to extend the curve to longer maturities. Using the deposit rate helps anchor the short end of your curve consistently, as outlined in standard bootstrapping procedures

Q6 Assumptions:

 **Simplification Assumption:**  
In practice, CVA is often calculated as the discounted expected loss using the *incremental* (or marginal) default probability over each period. That is, instead of using 1−Q(t)1−Q(t) (which is the cumulative default probability up to time tt), you might compute the difference between survival probabilities at successive periods:

ΔDefault Probability=Q(ti−1)−Q(ti)ΔDefault Probability=Q(ti−1​)−Q(ti​)

Multiplying this incremental default probability by the exposure in that period would yield a more precise CVA.  
**Your approach, however, is a reasonable discrete approximation** if you assume default risk is evaluated only at coupon dates and the exposure remains constant within each period.

 **Exposure Assumption:**  
You’ve taken the coupon amount as the exposure. This is appropriate if the main concern is the loss of coupon payments in the event of default. In a more detailed model, you might consider both coupon and principal exposures, especially if default risk applies to the whole bond value.