高级话题类11-15

面试问答题（中英文）

高级话题类 Advanced Topics（11-15）

11：自由内存指针是什么，它存储在哪里?

What is a free memory pointer and where is it stored?

答：

自由内存指针是指指向已经释放的内存地址的指针。当您释放内存时，内存中的数据并不会被删除，而是被标记为可用。如果您在稍后的时间内使用已经释放的内存地址，您可能会访问到已经被其他程序或数据覆盖的数据。这可能会导致程序崩溃或产生不可预测的行为。自由内存指针通常是由于编程错误或不正确的内存管理而引起的。

为了避免自由内存指针，您可以使用以下方法：

1.在释放内存后，将指针设置为NULL或0。

2.使用动态内存分配函数（例如malloc和calloc）来分配内存，并使用free函数来释放内存。

3.使用智能指针或垃圾回收器等工具来管理内存。

A free memory pointer is a pointer to a memory address that has been freed. When you free memory, the data in the memory is not deleted, but marked as available. If you use a freed memory address at a later time, you may access data that has been overwritten by another program or data. This could cause the program to crash or produce unpredictable behavior. Free memory pointers are usually caused by

programming errors or incorrect memory management.

To avoid free memory pointers, you can use the following methods:

1：set the pointer to NULL or 0 after freeing memory.

2：use dynamic memory allocation functions (such as malloc and calloc) to allocate memory.

3:use tools such as smart pointers or garbage collectors to manage memory.

12：什么是债券曲线(bonding curve)?

What is a bonding curve?

答：

债券曲线是指一种数学模型，用于描述债券价格与到期时间之间的关系。它通常是一个连续的曲线，横坐标表示债券的到期时间，纵坐标表示债券的价格。债券曲线可以用来计算债券的收益率、估算债券价格以及预测市场利率的变化等。在加密货币领域，债券曲线也被用于构建一些新型的金融工具，如预测市场价格的算法交易、代币发行等。

A bonding curve is a mathematical model that describes the relationship between the price of a bond and its time to maturity. It is usually a continuous curve with the horizontal coordinate representing the maturity of the bond and the vertical coordinate representing the price of the bond. Bond curves can be used to calculate bond yields, estimate bond prices, and predict changes in market interest rates. In the field of cryptocurrencies, bond curves are also used to construct some new types of financial instruments, such as algorithmic trading for predicting market prices, token issuance, and so on.

13：什么是三明治(sandwich)攻击?

What is a sandwich attack?

答：

三明治攻击是去中心化的一种攻击手段，主要出现在swap交易中。黑客节点把用户的交易夹在中间，前后是攻击者的交易，利用用户的交易改变价格，获取价差套利。例如用户买入eth, 黑客会在创建一个eth买单，和卖单，然后打包交易，区块内的交易顺序是：黑客买单 - 用户买单 - 黑客卖单。导致用户真正的买入价格偏高。解决：可设置低滑点，如果价格超出预算范围交易失败。

Sandwich attack is a decentralized means of attack, mainly in swap transactions. Hacker nodes put the user's transaction sandwiched in the middle, before and after the attacker's transactions, the use of the user's transactions to change the price, to obtain the spread arbitrage. For example, if a user buys eth, the hacker will create a buy order for eth, and a sell order, and then pack the transaction, the order of transactions in the block is: hacker buy order - user buy order - hacker sell order. The order of transactions in the block is: hacker buy order - user buy order - hacker sell order. This leads to the user's real buy price being high. Solution: low slippage can be set, if the price is out of the budget range the transaction fails.

14：滑点参数有什么用?

What is the Slippage parameter used for?

答：

滑点参数是指在交易时允许的价格波动范围。在去中心化交易所（DEX）中，滑点参数通常用于保护交易免受价格波动的影响。如果价格波动超过了滑点参数的范围，交易将被取消。滑点参数可以帮助交易者在不受过度波动的影响下进行交易，并减少交易失败的风险。

The slippage parameter is the range of price fluctuations allowed during trading. In decentralized exchanges (DEX), the slippage parameter is usually used to protect trades from price fluctuations. If the price fluctuation exceeds the range of the slippage parameter, the trade will be canceled. The slippage parameter helps traders to trade without being exposed to excessive volatility and reduces the risk of losing trades.

15、什么是 TWAP?

What is TWAP?

答：

TWAP（Time Weighted Average Price）时间加权平均价格是一种最简单的传统算法交易策略之一。该算法将交易时间均匀分割，并在每个分割节点上将均匀拆分的订单进行提交。其目的是使交易对市场影响减小的同时提供一个较低的平均成交价格，从而达到减小交易成本的目的。在分时成交量无法准确估计的情况下，该模型可以较好地实现算法交易的基本目的。

TWAP (Time Weighted Average Price) is one of the simplest traditional algorithmic trading strategies. The algorithm splits the trading time evenly and submits the evenly split orders at each split node. Its purpose is to minimize the impact of trading on the market while providing a lower average transaction price, thus achieving the purpose of reducing trading costs. The model can better achieve the basic purpose of algorithmic trading in cases where time-split volume cannot be accurately estimated.