

An  
Internship Report On  
**Algorithmic Trading and AMMs with Strategies**  
(FinTech, Artificial Intelligence, Automated Trading)

For the summer internship

at

Prodigal AI Technologies PVT LTD

&WORK CO-WORKING, PLOT NO. 5B, SECTOR - 15A FIRST FLOOR, NEELAM AJRONDA  
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**SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY**  
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**(CENTRAL UNIVERSITY)**  
**BILASPUR, CHHATTISGARH, INDIA**

(May 2022 - June 2022)

CERTIFICATE

# CERTIFICATE OF INTERNSHIP

This is to certify that,

*Abhijit Tripathy*

To commemorate his completion of the Internship Program  
from 1st May 2022 to 30th June 2022 as an ML Intern.



**NISHCHAL GABA**  
FOUNDER & CEO



# 1. Introduction

An automated market maker (AMM) is a type of decentralized exchange (DEX) protocol that relies on a mathematical formula to price assets. Instead of using an order book like a traditional exchange, assets are priced according to a pricing algorithm. [\[\[1\]Binance Academy, Used during internship\]](#)

This formula can vary with each protocol. For example, Uniswap uses  $x * y = k$ , where  $x$  is the amount of one token in the liquidity pool, and  $y$  is the amount of the other. In this formula,  $k$  is a fixed constant, meaning the pool's total liquidity always has to remain the same. Other AMMs will use other formulas for the specific use cases they target. The similarity between all of them, however, is that they determine the prices algorithmically. If this is a bit confusing right now, don't worry; hopefully, it'll all come together in the end. [\[\[2\] Uniswap V3 Whitepaper\]](#)

Traditional market making usually works with firms with vast resources and complex strategies. Market makers help you get a good price and tight bid-ask spread on an order book exchange like Binance. Automated market makers decentralize this process and let essentially anyone create a market on a blockchain.

## 1.1 How does an automated market maker (AMM) work?

An AMM works similarly to an order book exchange in that there are trading pairs – for example, ETH/DAI. However, you don't need to have a counterparty (another trader) on the other side to make a trade. Instead, you interact with a smart contract that “makes” the market for you.

On a decentralized exchange like Binance DEX [\[1\]](#), trades happen directly between user wallets. If you sell BNB for BUSD on Binance DEX, there's someone else on the other side of the trade buying BNB with their BUSD. We can call this a peer-to-peer (P2P) transaction.

In contrast, we could think of AMMs as peer-to-contract (P2C). There's no need for counterparties in the traditional sense, as trades happen between users and contracts. Since there's no order book, there are also no order types on an AMM. What price you get for an asset you want to buy or sell is determined by formula instead. Although it's worth noting that some future AMM designs may counteract this limitation. [\[1\]](#)

## 1.2 What is a liquidity pool?

A liquidity pool is a digital pile of cryptocurrency locked in a smart contract. This results in creating liquidity for faster transactions.