


Tax Invoice/Bill of Supply/Cash Memo

Sender: Nexxbase Marketing Pvt Ltd KHASRA No. 146/25/2/1, Jail Road, GSTIN: 06AADCN0946N1Z8, Gurgaon-122101 Email: 8882132132 GSTIN: 06AADCN0946N1Z8		Bill To: Anuj Verma Purvanchal Talkis Ke Samne Bhriгу Ashram, Ballia, Uttar Pradesh, BALLIA, Uttar Pradesh-277001		Ship To: Anuj Verma Purvanchal Talkis Ke Samne Bhriгу Ashram, Ballia, Uttar Pradesh, BALLIA, Uttar Pradesh-277001 IN anuj17026@iiitd.ac.in	
Invoice No: NH/23-24/795884 		Order No: 3758965 		Dispatch Through: 410004797404 	
Date: November 14, 2023		Date: November 14, 2023		EcomExpress_API Air	
Portal: www.gonoise.com		Payment Mode: COD			

SI No.	Description of Goods	Qty	Rate (Rs)	Less (Rs)	Taxable Amt (Rs)	IGST Amt (Rs)	Total (Rs)
1	wrb-sw-colorfitultra3-std-blk_blk - Noise ColorFit Ultra 3 Smartwatch - Jet Black HSN : 85176290 Shipping Charge	1	3,499.00	0.00	2,965.25	533.75 @ 18.00%	3,499.00
			29.00		24.58	4.42	29.00
Invoice Total		1		0.00	2,989.83	538.17	3,528.00

Amount Chargeable (in words) : Three Thousand Five Hundred And Twenty Eight Rupees Only

Declaration

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.



E. & O.E

HSN Code	Tax Rate%	Qty	Taxable Amt (Rs)	IGST Amt (Rs)	Total Tax Amt (Rs)	Total (Rs)
85176290	18.00%	1	2,989.83	538.17	538.17	3,528.00

for Nexxbase Marketing Pvt Ltd

Authorised Signatory



ABIN Assignment 5 (Deep learning)

Dr. Debarka Sengupta

10/11/2023

Guidelines

1. Deadline: 14th November 2023, 11:59 pm (Midnight).
2. Late submission: 15th November 2023, 11:59 pm (Midnight) (50% of the obtained marks will be deducted).
3. Further late submissions after the 15th November will be awarded zero.
4. All coding assignments must be submitted as .ipynb files with proper comments.
5. Standard IIIT-D plagiarism policy applies.
6. The assignments have to be submitted in the following manner:
 - (a) Create a single Jupyter notebook with proper demarcation of questions and responses (text, code, command, explanation, output, graphs). The accepted language is Python.
 - (b) A PDF file comprising the entire Jupyter Notebook and a separate Jupyter Notebook file needs to be uploaded (zip format) at the assignment link on Google Classroom before the deadline.
 - (c) One group should submit only from the registered submission ID during group formation. Rest of the members must turn in the assignments with private comments mentioning the name, roll, and submission id. Any violation of above will disqualify your submission from evaluation.
 - (d) The name of the PDF and jupyter notebook file should be a combination of the group number and assignment number. For example, group1 1.pdf, where 'group1' is the group number and '1' is the assignment number.
7. No shift of the deadline is allowed.

article

Question 1 (5 Points)

Create a neural network with one hidden layer containing 4 nodes, 2 input nodes, and 1 output node. Apply a sigmoid activation function after the linear block for each case.

1. Initialize the network's weights randomly. [1]
2. Perform backpropagation for 10 epochs and display the updated weights after each iteration. [2]
3. Plot the loss curve and metric curve and analyze the relationship between loss and epoch in backpropagation. [1]
4. Provide a reasoned explanation for the observed relationship. (1)

Question 2 (5 Points)

In our previous discussion about artificial neural networks applied to gene expression data in class, we identified an issue with data imbalance.


1. Implement two potential strategies to address this imbalance, being careful to select appropriate metrics for handling imbalanced data. [1+1]
2. Plot the loss versus epoch and metric versus epoch curves. [0.5+0.5]
3. Justify why both strategies are effective for handling imbalanced data. [1+1]

Question 3 (5 Points)

In our previous discussion about artificial neural networks and gene expression data, we recognized that the dataset had a limited number of samples. A standard train-test split may lead to high variance due to the random state.

1. Propose and implement two strategies that provide more reliable model estimations when dealing with a small sample size. [1+1]
2. Plot the loss versus epoch and metric versus epoch curves for all possible cases. [0.5+0.5]
3. Provide a rationale for why both strategies are expected to be effective. [1+1]

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for Nexxbase Marketing Pvt Ltd

Authorised Signatory



ANUJ VERMA

BhriguAshram, Ballia, UP 277001

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Experience

KLA-Tencor

Jan. 2023 – Present

Software Engineer 2

Chennai, Tamil Nadu

- Responsible for implementing **SEMI standards**, design and review of code.
- Being a developer, I have closely worked with different divisions to understand their requirements to build better products for them.
- SBS:** Solely responsible for creating a feature for switching between the different versions of software, that is responsible for wafer movement, which enables the user to keep different versions of software at the same time in the system. This feature can also help to switch between the same version of the software with different patches. That helps the user to keep working with the same version of the software with different patches.
- Nexus:** Nexus is the main software used for wafer handling, I made many fixes to make the wafer handling process faster and easier. Also worked on the code refactoring part for the extensibility and readability of the code. I have worked on adding features to this software to enhance the usage and throughput of the software.
- Doing the above, get hands-on with design principles, design patterns, and application of OOPs and SOLID.
- Tech and Tools:** .NET, SOLID, LLD, Visual Studio, GitHub

IDFC First Bank

Jun. 2021 – Dec, 2022

Application Engineer

Bengaluru, Karnataka

- Responsible for building a banking product engine on vault.
- Closely interacted with the COO, product lead, and business lead to understand the requirement, also to explain the limitations of the product, and provide a demo.
- BNPL:** Buy now pay later, created the engine for this product based on vault, written all the logic for this product as smart contracts that lead to an increase in the efficiency of the product. Did the extensive testing (unit, e2e, and simulation) to cover all the scenarios for this product. Did the documentation for all the features the product had.
- Observability Platform:** Develop a central dashboard for tracking credit card usage on different criteria like state, gender, region, age, and occupation. I also added the feature for getting alerts on the dashboard when there is credit card fraud happens, all these features implemented in real-time.
- Tech and Tools:** Python, Java, Kafka, Mulesoft, Druid, Superset, Postman, VS Code.

Technical Skills

Languages: C#, Java, Python

Expertise: Data Structure And Algorithms, OOPs, SOLID, Operating System, DBMS, Networking

Developer Tools: VS, VS Code, Eclipse, Google Colab, Android Studio, Matlab

Technologies/Frameworks: Linux, MacOS, GitHub, JUnit

Education

IIIT Delhi

Jul. 2017 – May 2021

Bachelor of Technology in Computer Science; GPA -: 8.07/10.0

New Delhi, Delhi

Projects

Sentiment Analysis Using Tweets During Pandemic | Python, HTML, NodeJS, Colab, IBM Cognos November 2020

- Collected real-time data between the fixed dates from twitter and used NLP to make it compatible for model.
- Did pre-processing on the data, used regression models to predict the sentiment and made an web app that can make request to this model and show the results.
- Used Pandas, DataFrames, Scikit, NLP, for pre-processing and model training.

IIIT Delhi APP Connect | JAVA, Android Studio, FireBase

October 2020

- An app that connect alumni, professor and students on one platform so that they can share, collaborate and discuss.
- App built on Android Studio using Java and for back end data handling firebase was used.

OFDMA Scheduler | C++, Linux, ns-3

October 2020

- A scheduler to schedule the different types of clients such as On-Off, BulkSend, and HTTP.
- Since the problem was NP hard, followed the greedy approach with some optimization.
- Performed the experiments for different brackets and then analysed the results.

Achievements

- Rated as overall 5-star employee in my previous organization.
- Ranked **2623** in JEE Mains, total appeared candidates were **1.5 million**.
- Among top **25.92** percent on **LeetCode** with rating of **1572**.
- Solved 1100+ problems on DS and Algo, cumulatively on **LeetCode**, **GFG**, and **CodeChef**.
- Member of Network Research Lab at IIIT Delhi.
- Participated in Google HashCode with world rank of **2699**