



**Camada Física da
Computação**

CAMADA FÍSICA DA COMPUTAÇÃO 2023-1

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Camada Física da Computação



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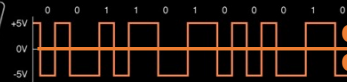
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AULAS:

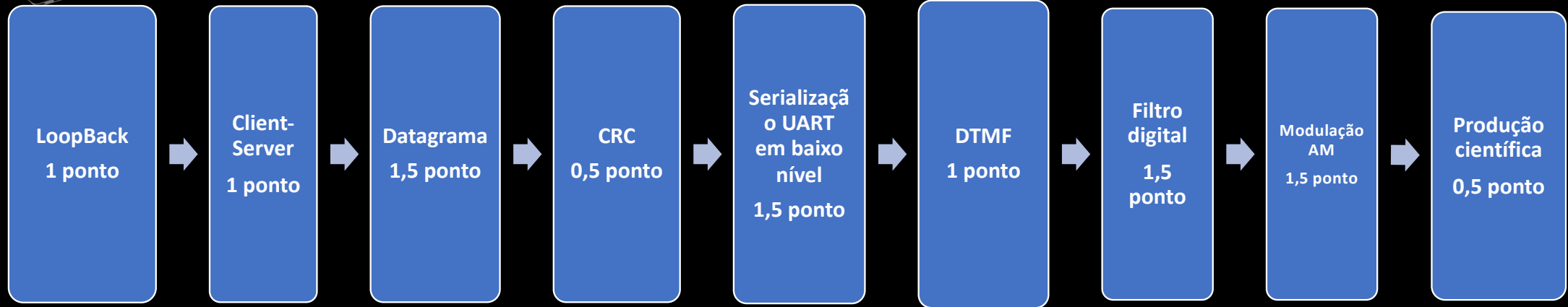
Quintas 13:30 às 15:30

Sextas 15:45 às 17:45

Atendimento: segunda-feira das 16:45 às 18:15



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- Um projeto só pode ser avaliado se você já teve o anterior avaliado. Atrasos na entrega acarretam penalizações de nota (25% por semana).
- Um projeto deve ser avaliado com a presença dos dois integrantes da dupla. Caso queiram apresentar o projeto sem um dos integrantes, o aluno ausente terá a nota reduzida em 50%.
- Haverá provas sobre os projetos.



0 0 1 1 0 1 0 0 0 1 0

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LoopBack

Client-
Server

Datagrama

CRC

Serialização
em baixo nível

DTMF

Modulação
AM

Filtros
digitais

**Produção
científica**

Scientific
paper
“Alegações
extraordinárias
exigem evidências
extraordinárias”
Carl Sagan

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Computation of Neural Network using C# with Respect to Bioinformatics

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Abstract: Neural network is the emerging field in the era of globalization which is fully based on the concept of soft-computing technique and bioinformatics. In the competitive market of new development process, Bioinformatics play the vital role to give the process of integration aspect as multidisciplinary subject like biological Science, medicine science, computer science, engineering, chemical science, physical science as well as mathematical science who gives the experiences of artificial activities of human behaviour in the form of software. Now a days neural Network and its multidimensional approach give the idea for solving bioinformatics problems to handle imprecision, uncertainty in large and complex search spaces. This paper gives the emphasis on multidimensional approaches of neural network with soft computing paradigm using C# in bioinformatics with integrative research methodology. The overall process of multidimensional approaches of bioinformatics neurons can also be understood with the help of flow chart and diagram is the major concerned.

Index Terms: Soft-computing technique of C#, Neural Network, bioinformatics, Bioinformatics tools, Genetic algorithms.

I. INTRODUCTION

The paper tried to explore the exact relationship among neural network, genetic algorithm, and bioinformatics with the help of C# computational approach [1][2]. We all know the running world is fully depends of computer technique which play vital role in living style as well as working life from here and there. Now we are generating the idea of modelling and computational programming technique having multidimensional prospects who can behave like the human activities by artificial component. Hence we are fully concerned on the soft-computing process by introducing the application and utilization of neural network, genetic algorithm & bioinformatics [3][4].

Artificial neural networks as a major soft-computing technology has been extensively studied & applied during the last three decades. The Neural Network, especially the multilayer perceptrons network with a back propagation training algorithm, have gained recognition in research and applications with various scientific and engineering areas. Soft computing techniques demonstrates the high standards of technology, algorithms, and tools in bioinformatics for dedicated purposes such as reliable and parallel genome sequencing, fast sequence comparison, search in databases, automated gene identification, efficient

modelling and storage of heterogeneous data, etc. On the other side the continuous development of high quality biotechnology, e.g. micro-array techniques and mass spectrometry, which provide complex patterns for the direct characterization of cell processes. With the advance of gene expression data in the bioinformatics field, the questions which frequently arise, for both computer and medical scientists, are which genes are significantly involved in discriminating cancer classes and which genes are significant with respect to specific cancer pathology. Numerous computational analysis models have been developed to identify informative genes from the microarray data, however, the integrity of the reported genes is still uncertain. The flow chart and diagrammatical approaches are also presented for easy understanding the concept of bioinformatics in neural.

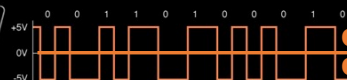
The complete paper is divided into six section including introduction and conclusion. Section one contains the brief idea of computation of neural network with Bioinformatics & Genetic concept. Section two includes the concept of soft-computing technique and its component on bioinformatics & neural network in C#. Section three concentrated on bioinformatics with its objective, scope, application along with development of algorithms in updated version. Computation of neural network, its advantage, application and connection with bio information includes in section four. Relationship among Neural Network, Genetic Algorithm and Bioinformatics will be explain in section five with complete compilation among all of them. The modified version of General Mathematical Model of Neural Network for Bioinformatics impact of hidden layers as per input to be discussed with complete computation in C#. In each section research to be worked on diagrammatical presentations of bioinformatics in Neural, Genetics as well as computing is the major concerned. Total ten figured diagram to be presented for better understanding in concise manner having multidimensional approaches of these three concept. Last section gives the future scope and conclusion of this paper.

II. SOFT COMPUTING TECHNIQUE AND ITS

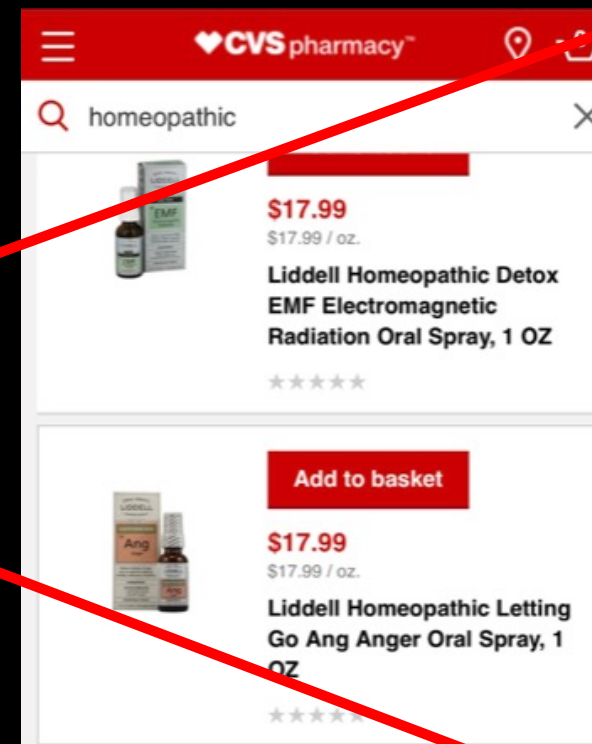
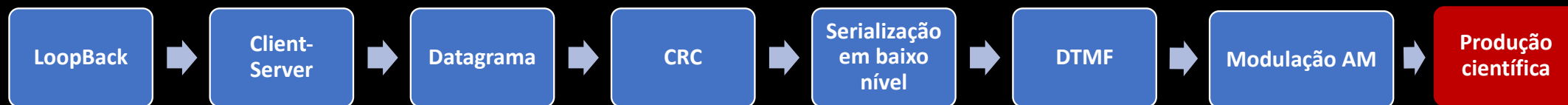
Soft computing techniques are often used in conjunction with rule-based expert systems where the knowledge is usually in the form of if-then rules. Every computational process purposely includes imprecision into the calculation on one or more levels and allow this imprecision either to change (decrease) the granularity of the problem, or “to soften” the goal

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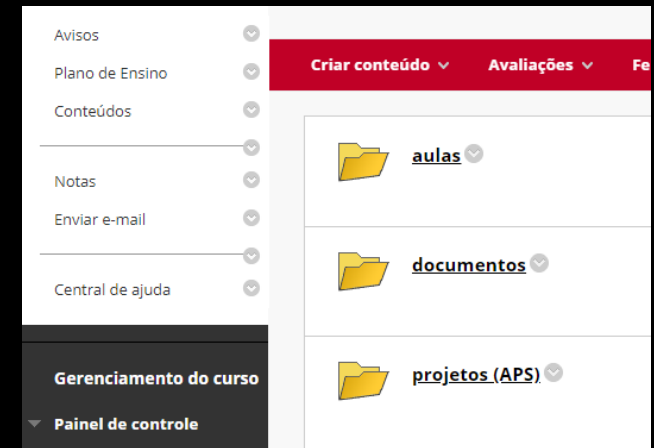
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Sala 404



Blackboard



INTRODUÇÕES
TEÓRICAS E
APRESENTAÇÃO
DO PROJETO

ESTÚDIOS PARA
O PROJETO

AVALIAÇÃO DO
PROJETO

QUIZ SOBRE O
PROJETO



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MÉDIA FINAL DO CURSO

Média quizzes:	peso	10%
Média projetos:	peso	40%
Média provas:	peso	50%

$$\text{Média provas: } \frac{AI + 3 \cdot AF}{4}$$

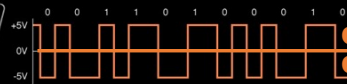


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CRITÉRIO DE APROVAÇÃO

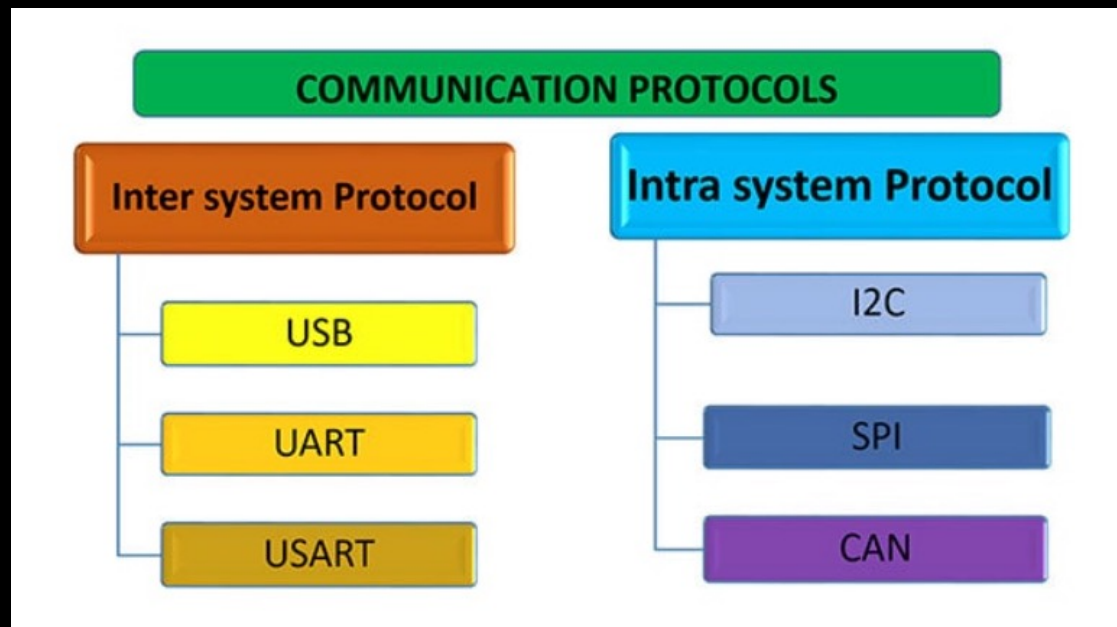
1 - Nota curso maior ou igual a 5

2 –Média provas maior ou igual a 5!



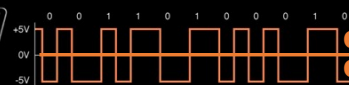
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PROTOCOLO DE COMUNICAÇÃO (hardware)



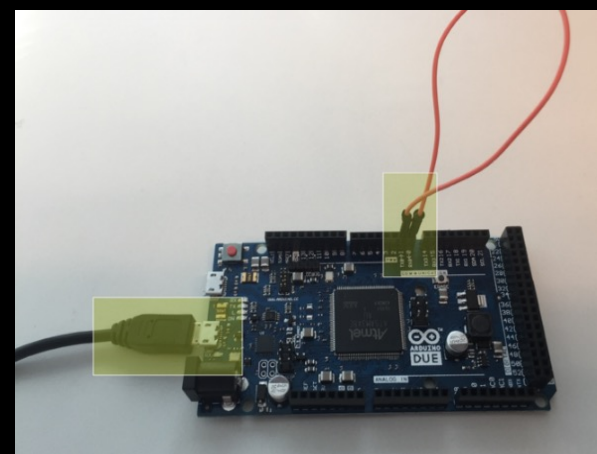
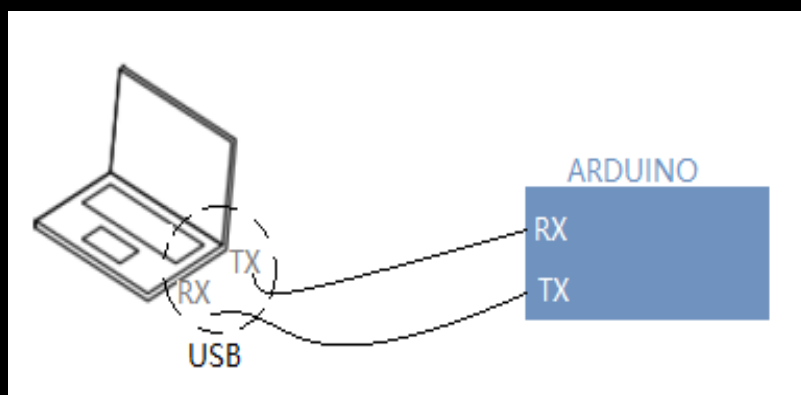
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0	0V	-5V	0V	0V
1	5V	+5V	+12	3.3V



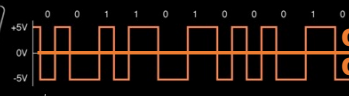
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PROJETO 1 – LOOPBACK UART

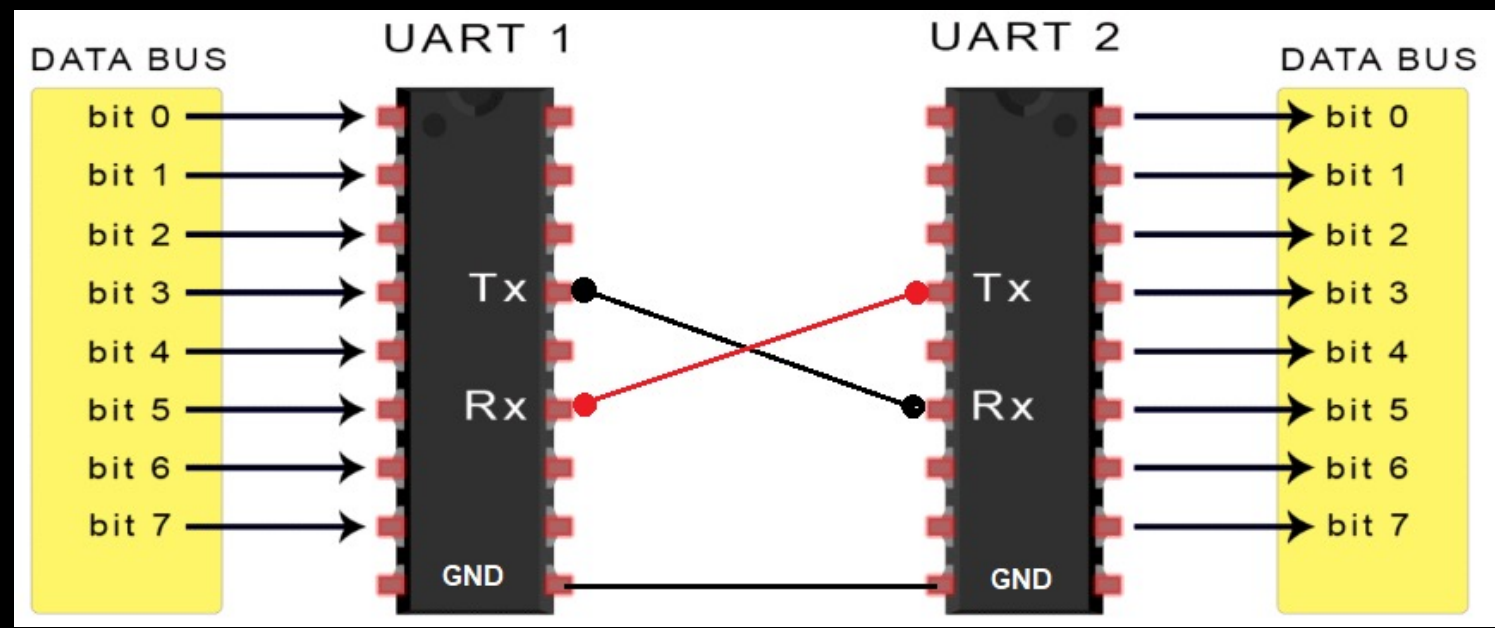


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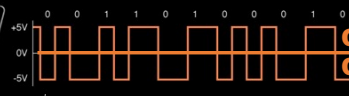
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1	5V	+5V	+12	3.3V



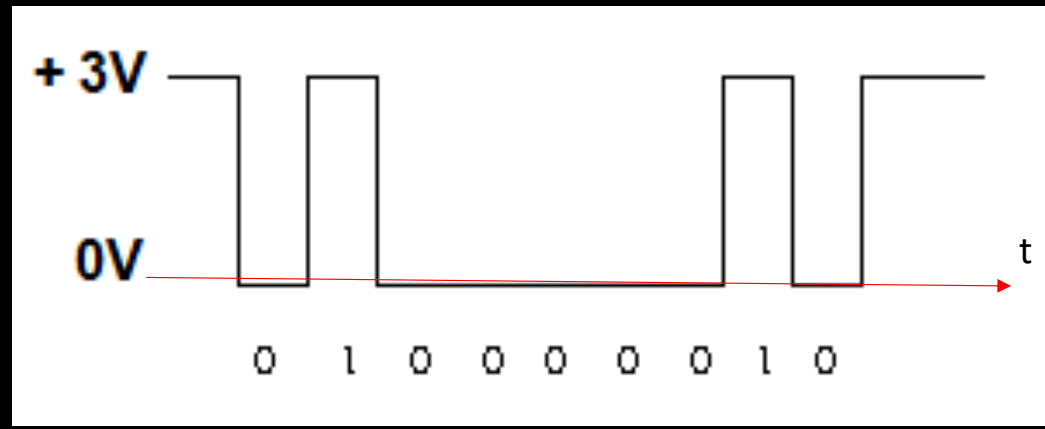
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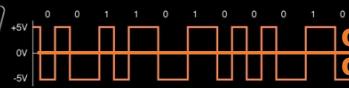
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1	5V	+5V	+12	3.3V



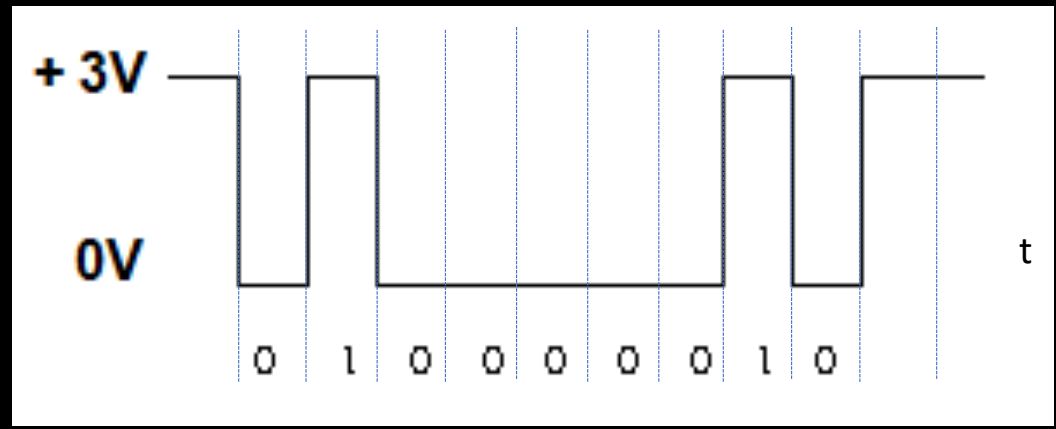
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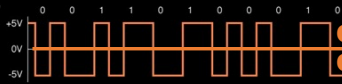
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1	5V	+5V	+12	3.3V



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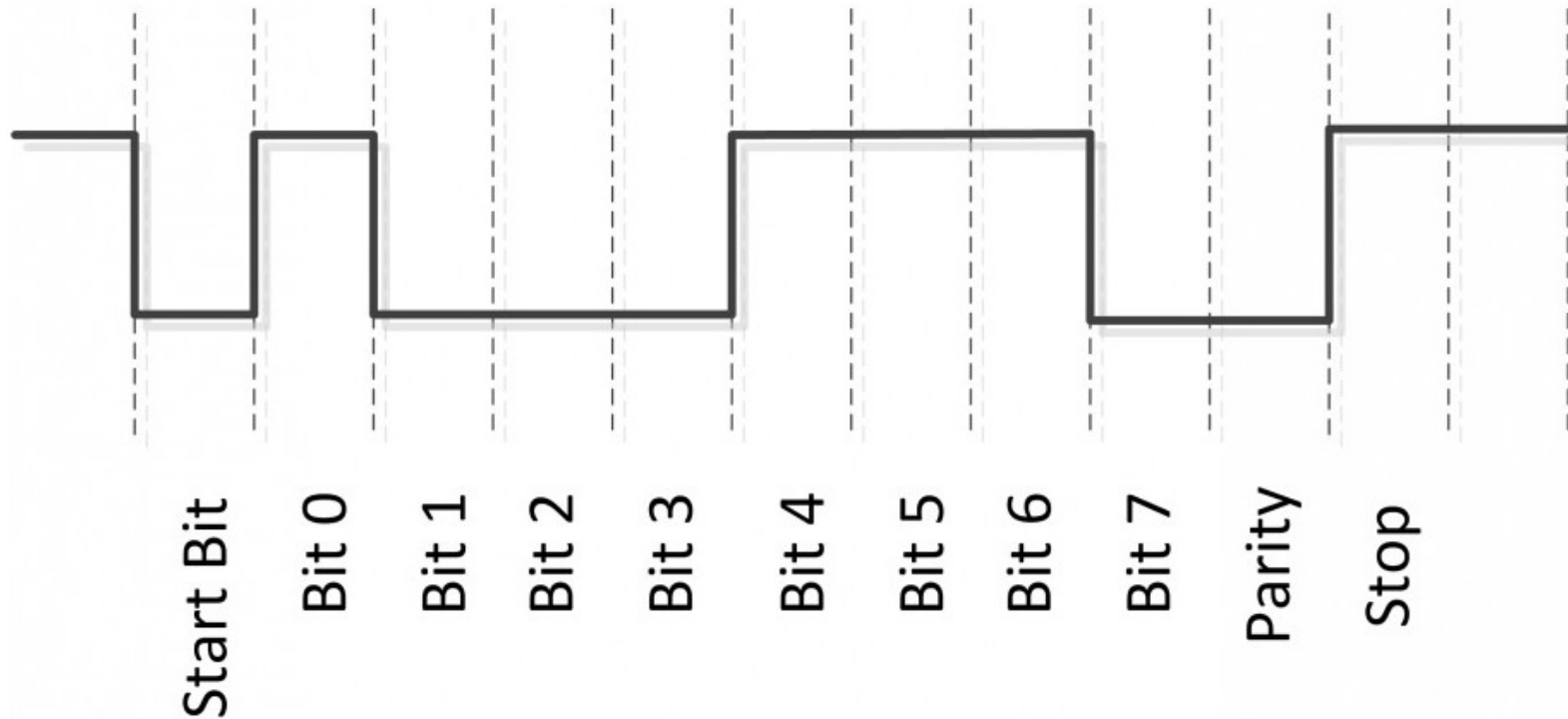
0	0V	-5V	0V	0V
1	5V	+5V	+12	3.3V

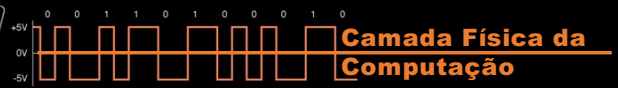


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UART FRAME

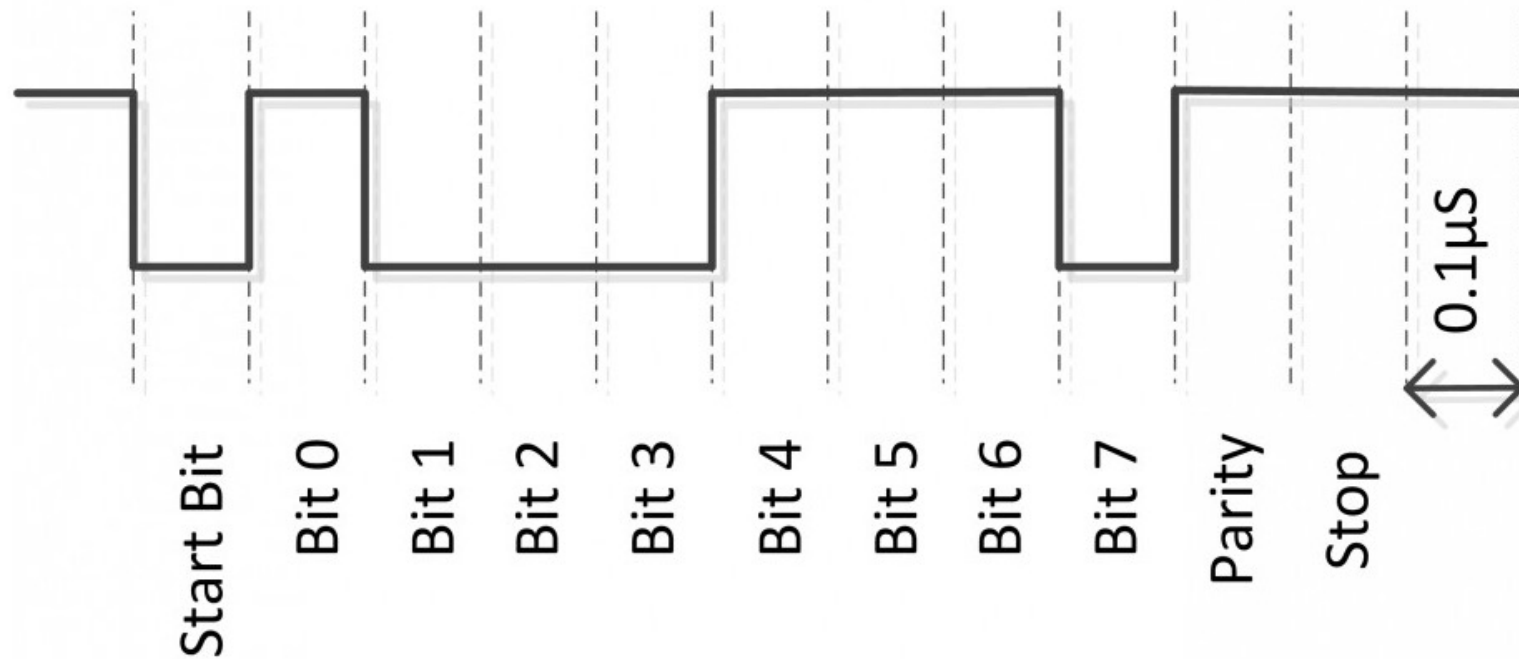
0x71, Even Parity

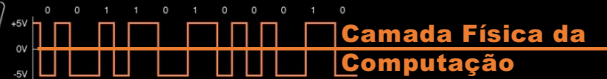




UART FRAME

0x71, Odd Parity



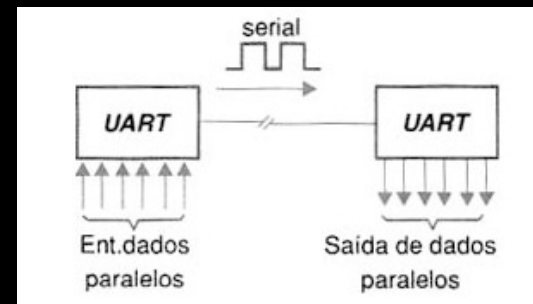
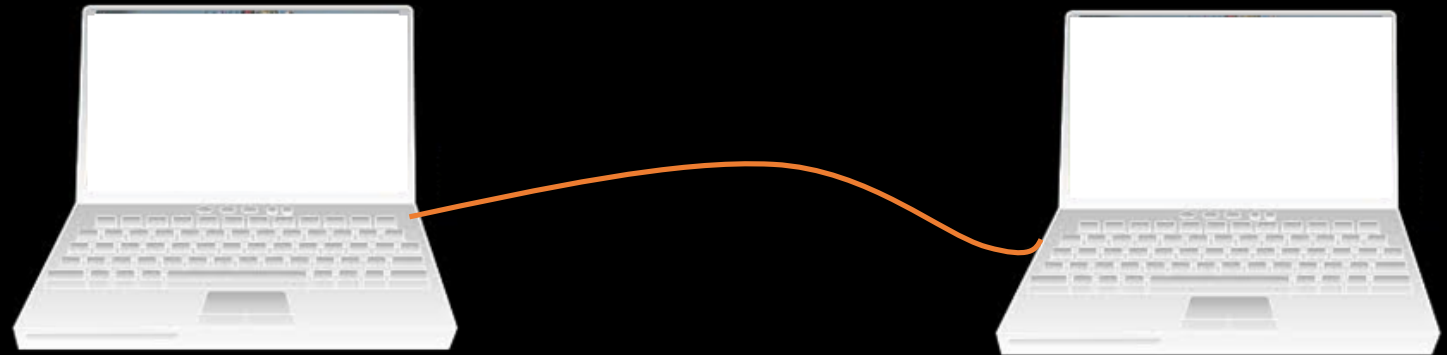


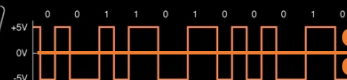
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TRANSMISSÃO DIGITAL - UART

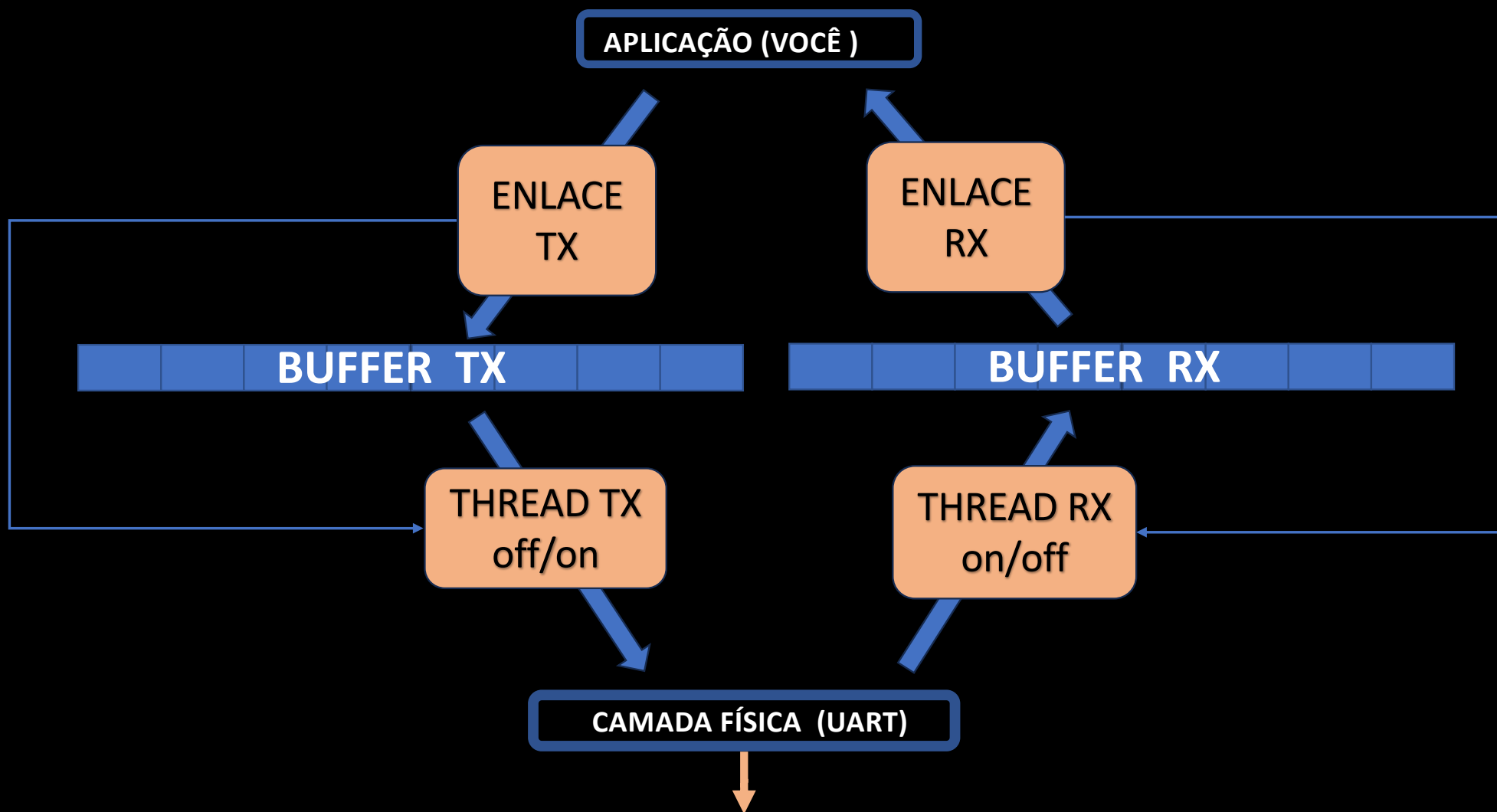
Alguns conceitos de uma camada!

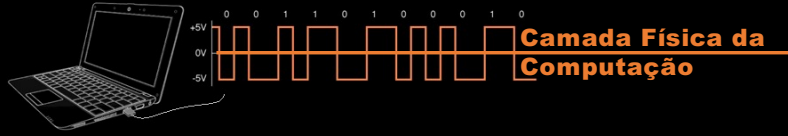
- Transmissão assíncrona
- UART – Start bit
- UART – Stop bit
- UART – TX, RX, GND
- UART – Baud rate
- UART – Bit rate
- UART – Buffer
- UART – Frame
- UART – Bit de Paridade
- UART – CRC





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LOOP BACK !

