

```

{
  "nbformat": 4,
  "nbformat_minor": 0,
  "metadata": {
    "colab": {
      "name": "gates_perceptron_1.ipynb",
      "provenance": [],
      "collapsed_sections": [],
      "authorship_tag": "ABX9Ty0x1jMFVK90SxeTCm3x32aK",
      "include_colab_link": true
    },
    "kernelspec": {
      "name": "python3",
      "display_name": "Python 3"
    },
    "language_info": {
      "name": "python"
    }
  },
  "cells": [
    {
      "cell_type": "markdown",
      "metadata": {
        "id": "view-in-github",
        "colab_type": "text"
      },
      "source": [
        "<a
href=\\\"https://colab.research.google.com/github/irhallac/SisLab/blob/main/gates_perceptron_1.ipynb\\\" target=\\\"_parent\\\"><img
src=\\\"https://colab.research.google.com/assets/colab-badge.svg\\\" alt=\\\"Open In Colab\\\"/></a>"
      ]
    },
    {
      "cell_type": "code",
      "source": [
        "# Lojik kapıların Perceptron öğrenme algoritmasıyla modellenmesi"
      ],
      "metadata": {
        "id": "I7sz4vaJQpvM"
      },
      "execution_count": 2,
      "outputs": []
    }
  ],

```

```

{
  "cell_type": "code",
  "source": [
    "import matplotlib.pyplot as plt\n",
    "import numpy as np"
  ],
  "metadata": {
    "id": "8MkfMisUP8f6"
  },
  "execution_count": 3,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "giris = np.array([[1, 1], [1, 0], [0, 1], [0, 0]])\n",
    "cikis = np.array([1, 1, 1, 0]) #or\n",
    "\n",
    "# np.array([1, 0, 0, 0]) # and\n",
    "#np.array([1, 1, 1, 0]) #or\n",
    "#np.array([0, 1, 1, 0]) #ex_or"
  ],
  "metadata": {
    "id": "oV822TTdP-Sb"
  },
  "execution_count": 4,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "plt.title('OR KAPISI', fontsize=16)\n",
    "plt.scatter(giris[:,0], giris[:,1], s=400, c = cikis)\n",
    "plt.grid() \n",
    "plt.show()"
  ],
  "metadata": {
    "colab": {
      "base_uri": "https://localhost:8080/",
      "height": 283
    },
    "id": "NReZcr26P6wD",
    "outputId": "90a277d4-ccab-402f-9722-21c6ee2658c5"
  },
  "execution_count": 5,
  "outputs": [

```

```

{
  "output_type": "display_data",
  "data": {
    "image/png": " +W2nw+cBVwcEZ8Ypd0JQD3w3dz0d4BpwD+00L4 \n",
    "text/plain": [
      "<Figure size 432x288 with 1 Axes>"
    ]
  },
  "metadata": {
    "needs_background": "light"
  }
}
]
},
{
  "cell_type": "code",
  "source": [
    "ogrenme_orani = 0.1\n",
    "iter_sayisi = 10\n",
    "\n",
    "\n",
    "w = np.zeros(1 + giris.shape[1])\n",
    "hatalar = []\n",
    "for _ in range(iter_sayisi):\n",
    "    hata = 0\n",
    "    for xi, hedef in zip(giris, cikis):\n",
    "        hesap = np.dot(xi, w[1:]) + w[0]\n",
    "        tahmin = np.where(hesap >= 0.0, 1, 0)\n",
    "        degisim = ogrenme_orani * (hedef - tahmin)\n",
    "        w[1:] += degisim * xi\n",
    "        w[0] += degisim\n",
    "        hata += int(degisim != 0.0)\n",
    "    hatalar.append(hata)"
  ],
  "metadata": {
    "id": "QDrUFqZW6p5v"
  },
  "execution_count": 6,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "hatalar"
  ],
  "metadata": {

```

```
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "id": "QVZKIuxF45H-",
    "outputId": "ecb5692a-a180-4ff4-80c9-7ec56f7dc385"
  },
  "execution_count": 7,
  "outputs": [
    {
      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "[1, 2, 0, 0, 0, 0, 0, 0, 0, 0]"
        ]
      },
      "metadata": {},
      "execution_count": 7
    }
  ],
},
{
  "cell_type": "code",
  "source": [
    "w"
  ],
  "metadata": {
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "id": "PFyww_80472b",
    "outputId": "981caeba-8a9c-43ef-dcee-5269eba21147"
  },
  "execution_count": 8,
  "outputs": [
    {
      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "array([-0.1,  0.1,  0.1])"
        ]
      },
      "metadata": {},
      "execution_count": 8
    }
  ],
},
```

```

{
  "cell_type": "code",
  "source": [
    "plt.plot(range(1, len(hatalar) + 1), hatalar)\n",
    "plt.xlabel('Deneme No')\n",
    "plt.ylabel('Hatalı tahmin sayısı')\n",
    "plt.show()"
  ],
  "metadata": {
    "colab": {
      "base_uri": "https://localhost:8080/",
      "height": 279
    },
    "id": "R_4EIZEVXJpT",
    "outputId": "f19f823f-bc7a-4e66-f02c-94705a8fe261"
  },
  "execution_count": 9,
  "outputs": [
    {
      "output_type": "display_data",
      "data": {
        "image/png": "Fwfy93Egfx/7Hc53cUxEzCm14YhKEEcCSe2DVRSMN/4 =\n",
        "text/plain": [
          "<Figure size 432x288 with 1 Axes>"
        ]
      },
      "metadata": {
        "needs_background": "light"
      }
    }
  ],
},
{
  "cell_type": "code",
  "source": [
    ""
  ],
  "metadata": {
    "id": "DuyQLjKa5ep8"
  },
  "execution_count": null,
  "outputs": []
}
]
}

```