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//NATURE OF CODE: FINAL PROJECT_EASYCHEM:)
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//Profesor Daniel Shiffman, The Nature of Code (CORE-AD 16J)

//(1)Pls go on full screen
//(2)Pls click on the "USE" button everytime you perform a new precipitation reaction

//defining the variables for the elements in the Drop-Down menu, the buttons and other variables
var sel1;
var sel2;
var button1;
var button2;
var useP;
var showInfo = false;

function setup() {
  //setting up the Canvas height and width to be the same as the Window's
  createCanvas(windowWidth, windowHeight);
  //Creating the variable for the Use of the precipitate
  useP = createP("");
  useP.position(20, 120);
  useP.style("background-color", "#FF0000");
  useP.style("font-family", "monospace");
  useP.style("color", "0");
  useP.style("font-size", "15pt");
  //creating the 2 buttons
  button1 = createButton(" CHEM INFO");
  button1.position(450, 20);
  button1.mousePressed(Info);
  button2 = createButton("USE OF PRECIPITATE PRODUCED");
  button2.position(450, 50);
  button2.mousePressed(Use);
  textAlign(CENTER);
  background(0);
  text("+", 180, 65);
  //Creating the 2 Drop-Down Menus; one for the cations and another for the precipitating reagents
  sel1 = createSelect();
  sel1.position(10, 50);
  sel1.option('Select CATION', 0);
  sel1.option('Pb(2+), Plumbous Ion', 1);
  sel1.option('Cu(2+), Cupric Ion', 2);
  sel1.option('Zn(2+), Zinc Ion', 3);
  sel1.option('Al(3+), Aluminium Ion', 4);
  sel1.option('Fe(2+), Ferrous Ion', 5);
  sel1.option('Fe(3+), Ferric Ion', 6);

  sel2 = createSelect();
  sel2.position(200, 50);
  sel2.option('Select PRECIPITATING AGENT', 0);
  sel2.option('dil NaOH (Sodium Hydroxide)', 1);
  sel2.option('NH4OH (Ammonium Hydroxide)', 2);
  sel2.option('H2S (Hydrogen Sulfide)', 3);

  //Inserting the YouTube video into the canvas
  var youtube = createElement('iframe');
  youtube.attribute('width', '300');

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youtube.attribute('height', '200');
youtube.attribute('src', 'https://www.youtube.com/embed/llu16dy3ThI');
youtube.position(370, 220);
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//Creating a Para for the Chem Info; linked to the first button (button1)
info = createP("PRECIPITATION REACTIONS: Are chemical reaction that occur in aqueous solution when
two ions bond together to form an insoluble salt, known as the precipitate. These reactions can be used to
identify the unknown ions in the aqueous solution of their salts. We focus on identifying cations using the
common chemical reagents used are NaOH (aq), NH4OH (aq) and H2S (aq) as precipitating agents. ");
info.position(20, 450);
info.style("font-size", "15pt");
info.style("font-family", "monospace");
info.style("background-color", "#FF0000");
info.hide();
}
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//Linking button1 to the paragraph on the Chem Info
function Info() {
  if (showInfo) {
    info.hide();
    showInfo = false;
  } else {
    info.show();
    showInfo = true;
  }
}
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function draw() {
  background(0);
  var item1 = sel1.value();
  var item2 = sel2.value();
  fill(255);
  text("+", 180, 65);
  //this is the meat of the code; getting the background to change color and reflect the name of the precipitate
  from each reaction; using the "if" and "else if" logic
  if (item1 == 1 && item2 == 1) {
    background(255);
    fill(0);
    text("+", 180, 65);
    fill(0);
    textSize(16);
    text("Pb(OH)2, WHITE CHALKY PRECIPITATE", 200, 100);
  } else if (item1 == 1 && item2 == 2) {
    background(255);
    text("+", 180, 60);
    fill(0);
    textSize(16);
    text("Pb(OH)2, WHITE CHALKY PRECIPITATE", 200, 100);
  } else if (item1 == 1 && item2 == 3) {
    background(0);
    text("+", 180, 65);
    fill(255);
    textSize(16);
    text("PbS, BLACK PRECIPITATE", 200, 100);
  } else if (item1 == 2 && item2 == 1) {
    background(255);
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text("+", 180, 65);
fill(0);
textSize(16);
text("Cu(OH)2, WHITE CHALKY PRECIPITATE", 200, 100);
} else if (item1 == 2 && item2 == 2) {
background(0);
text("+", 180, 65);
fill(255);
textSize(16);
text("NO PRECIPITATE", 200, 100);
} else if (item1 == 2 && item2 == 3) {
background(0);
text("+", 180, 65);
fill(255);
textSize(16);
text("NO PRECIPITATE", 200, 100);
} else if (item1 == 3 && item2 == 1) {
background(255);
text("+", 180, 65);
fill(0);
textSize(16);
text("Zn(OH)2, WHITE GELATINOUS PRECIPITATE", 200, 100);
} else if (item1 == 3 && item2 == 2) {
background(255);
text("+", 180, 65);
fill(0);
textSize(16);
text("Zn(OH)2, WHITE GELATINOUS PRECIPITATE", 200, 100);
} else if (item1 == 3 && item2 == 3) {
background(255);
text("+", 180, 65);
fill(0);
textSize(16);
text("ZnS, WHITE PRECIPITATE", 200, 100);
} else if (item1 == 4 && item2 == 1) {
background(255);
text("+", 180, 65);
fill(0);
textSize(16);
text("Al(OH)3, WHITE GELATINOUS PRECIPITATE", 200, 100);
} else if (item1 == 4 && item2 == 2) {
background(255);
text("+", 180, 65);
fill(0);
textSize(16);
text("Al(OH)3, WHITE GELATINOUS PRECIPITATE", 200, 100);
} else if (item1 == 4 && item2 == 3) {
background(0);
text("+", 180, 65);
fill(255);
textSize(16);
text("NO PRECIPITATE", 200, 100);
} else if (item1 == 5 && item2 == 1) {
background(100, 255, 140);
fill(0);
text("+", 180, 65);

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fill(0);
textSize(16);
text("Fe(OH)2, PALE GREEN PRECIPITATE", 200, 100);
} else if (item1 == 5 && item2 == 2) {
background(100, 255, 140);
fill(0);
text("+", 180, 65);
fill(0);
textSize(16);
text("Fe(OH)2, PALE GREEN PRECIPITATE", 200, 100);
} else if (item1 == 5 && item2 == 3) {
background(0);
fill(255);
text("+", 180, 65);
fill(255);
textSize(16);
text("FeS, BLACK PRECIPITATE", 200, 100);
} else if (item1 == 6 && item2 == 1) {
background(255, 90, 30);
fill(0);
text("+", 180, 65);
fill(0);
textSize(16);
text("Fe(OH)3, RED-BROWN/ RUST PRECIPITATE", 200, 100);
} else if (item1 == 6 && item2 == 2) {
background(255, 90, 30);
fill(0);
text("+", 180, 65);
fill(0);
textSize(16);
text("Fe(OH)3, RED-BROWN/ RUST PRECIPITATE", 200, 100);
} else if (item1 == 6 && item2 == 3) {
background(255, 244, 0);
fill(0);
text("+", 180, 65);
fill(0);
textSize(16);
text("YELLOW PRECIPITATE OF SULPHUR PARTICLES", 200, 100);
}
}

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//Defining the function for Use of the precipitate; linked to button2

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function Use() {
var item1 = sel1.value();
var item2 = sel2.value();
if (item1 == 1 && item2 == 1) {
useP.html("Used in making albumin and tannic acid");
} else if (item1 == 1 && item2 == 2) {
useP.html("Used in making albumin and tannic acid");
} else if (item1 == 1 && item2 == 3) {
useP.html("Used as a semiconductor");
} else if (item1 == 2 && item2 == 1) {
useP.html("Used to make rayon, electrodes and insecticides");
} else if (item1 == 2 && item2 == 2) {
useP.html("N/A");
} else if (item1 == 2 && item2 == 3) {

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    useP.html("N/A");
} else if (item1 == 3 && item2 == 1) {
    useP.html("Used in surgical dressing and galvanization");
} else if (item1 == 3 && item2 == 2) {
    useP.html("Used in surgical dressing and galvanization");
} else if (item1 == 3 && item2 == 3) {
    useP.html("Used in visible and infrared optics");
} else if (item1 == 4 && item2 == 1) {
    useP.html("Used as an antacid and in chromatography devices");
} else if (item1 == 4 && item2 == 2) {
    useP.html("Used as an antacid and in chromatography devices");
} else if (item1 == 4 && item2 == 3) {
    useP.html("N/A");
} else if (item1 == 5 && item2 == 1) {
    useP.html("Used in removal of toxic chemicals like selenate from water; iron-nickel batteries");
} else if (item1 == 5 && item2 == 2) {
    useP.html("Used in removal of toxic chemicals like selenate from water; iron-nickel batteries");
} else if (item1 == 5 && item2 == 3) {
    useP.html("Used in production of stainless steel");
} else if (item1 == 6 && item2 == 1) {
    useP.html("Used in treatment of arsenic, removal of toxics in water and in packaging");
} else if (item1 == 6 && item2 == 2) {
    useP.html("Used in treatment of arsenic, removal of toxics in water and in packaging");
} else if (item1 == 6 && item2 == 3) {
    useP.html("Artificial product; not found in nature");
}
}
```