Two Body Simulation (1 Heavy and Other Less Heavy)

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G = 667 384 / 10^16; (* Gravitational Constant *)
Au = 149 597 870 690; (* Astronomical Unit in m *)
mSol = 1988 * 10^27; (* Sun Mass in kg *)


(* Container *)Funktion[{{x1x_, y1y_, z1z_}, {x2x_, y2y_, z2z_}},
  {{vx1x_, vy1y_, vz1z_}, {vx2x_, vy2y_, vz2z_}}, {m1_, m2_}, T_,
  plotType : ("x" | "v"), plotOptions___] := Module[{nds, Tmax, funcToPlot},

                          (* Differential Equation *)
   nds = NDSolve[{
      x1'[t] == vx1[t], y1'[t] == vy1[t], z1'[t] == vz1[t],
      x2'[t] == vx2[t], y2'[t] == vy2[t], z2'[t] == vz2[t],
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$$vx1'[t] == \frac{G\ m2\ (x2[t] - x1[t])}{\sqrt{\left((x2[t] - x1[t])^2 + (y2[t] - y1[t])^2 + (z2[t] - z1[t])^2\right)^3}},$$

$$vy1'[t] == \frac{(G\ m2\ (y2[t] - y1[t]))}{\sqrt{\left((x2[t] - x1[t])^2 + (y2[t] - y1[t])^2 + (z2[t] - z1[t])^2\right)^3}},$$

$$vz1'[t] == \frac{(G\ m2\ (z2[t] - z1[t]))}{\sqrt{\left((x2[t] - x1[t])^2 + (y2[t] - y1[t])^2 + (z2[t] - z1[t])^2\right)^3}},$$

$$vx2'[t] == \frac{G\ m1\ (x1[t] - x2[t])}{\sqrt{\left((x1[t] - x2[t])^2 + (y1[t] - y2[t])^2 + (z1[t] - z2[t])^2\right)^3}},$$

$$vy2'[t] == \frac{G\,m1\,\left(y1[t]-y2[t]\right)}{\sqrt{\left(\left(x1[t]-x2[t]\right)^2+\left(y1[t]-y2[t]\right)^2+\left(z1[t]-z2[t]\right)^2\right)^3}},$$

$$vz2'[t] == \frac{G\,m1\,\left(z1[t]-z2[t]\right)}{\sqrt{\left(\left(x2[t]-x1[t]\right)^2+\left(y2[t]-y1[t]\right)^2+\left(z2[t]-z1[t]\right)^2\right)^3}},$$

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    x1[0] == x1x, y1[0] == y1y, z1[0] == z1z,
    x2[0] == x2x, y2[0] == y2y, z2[0] == z2z,

    vx1[0] == vx1x, vy1[0] == vy1y, vz1[0] == vz1z,
    vx2[0] == vx2x, vy2[0] == vy2y, vz2[0] == vz2z},

   {x1, x2, y1, y2, z1, z2,
    vx1, vx2, vy1, vy2, vz1, vz2},
   {t, 0, T}];

If[Head[nds] =!= NDSolve, Tmax = nds[[1, 1, 2, 1, 1, 2]];

 funcToPlot = If[plotType === "x", {{x1[t], y1[t], z1[t]}, {x2[t], y2[t], z2[t]}},
    {{vx1[t], vy1[t], vz1[t]}, {vx2[t], vy2[t], vz2[t]}}] /. nds[[1]];

 (* Plot Specifications *)

 ParametricPlot3D[Evaluate[funcToPlot],
  {t, 0, Tmax}, PlotStyle → {{Red, Thick}, {Blue, Thick}},

  (* Plot Range *)
  PlotRange → {{-2 Au, 2 Au}, {-2 Au, 2 Au}}, AspectRatio → 1, MaxRecursion →
   ControlActive[3, 100], plotOptions], Text["Yukterez Mod."]] // Quiet
```

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Manipulate[Show[Funktion[
    (* Positions xyz *) {{P1x, P1y, P1z}, {P2x, P2y, P2z}},
    (* Velocities xyz *) {{v1x, v1y, v1z}, {v2x, v2y, v2z}},
    (* Masses *) {M1, M2},
    (* Plot Variables  *) T, xv,
    ImageSize → {440, 440}],

  (* Initial Positions *)
  Graphics3D[{{Red, Point[{P1x, P1y, P1z}]}, {Blue, Point[{P2x, P2y, P2z}]}}]],
 {{xv, "x", "Position"},
  {"x" → "Position"}},

 (* Starttime and Timeinterval *)
 {{T, 3*^6, "Time"}, 10 000, 2 * 10^7},
 {{M1, mSol}, 1, 4 mSol}, {{M2, mSol}, 1, 2 mSol},
 {{P1x, -Au}, -2 Au, 2 Au}, {{P1y, 0}, -2 Au, 2 Au}, {{P1z, -Au}, -2 Au, 2 Au},
 {{P2x, Au}, -2 Au, 2 Au}, {{P2y, 0}, -2 Au, 2 Au}, {{P2z, Au}, -2 Au, 2 Au},
 {{v1x, 0}, -100 000, 100 000},
 {{v1y, 0}, -100 000, 100 000}, {{v1z, 0}, -100 000, 100 000},
 {{v2x, 0}, -100 000, 100 000}, {{v2y, 0}, -100 000, 100 000},
 {{v2z, 0}, -100 000, 100 000},

 ControlPlacement → {Right}]
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