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/*
This is a program of the height dependence of the velocity of a rain drop. This program is created by
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*/

# include <stdio.h>
# include <math.h>

    int main ()

    {
        float t, v, h, k, m;
        int i;
        float dt, g = 9.81;
        char con;
        FILE *rain drop;

        rain drop = fopen ("\\rain drop.txt", "a");

        do {
            v = 0; t = 0;

            printf ("Input the height of the rain drop: ");
            scanf ("%f", &h);
            printf ("Input the time interval: ");
            scanf ("%f", &dt);
            printf ("Input the mass of the particle: ");
            scanf ("%f", &m);
            printf ("Input the constant: ");
            scanf ("%f", &k);

        fprintf (rain drop, "The height of the rain drop: %f \n", h);
        fprintf (rain drop, "The time interval: %f \n", dt);

        fprintf (rain drop, "Time \t Height \t velocity \n");

        i = 1;
        do {
        fprintf (rain drop, "%f \t %f \t %f \n", t, h, v);

            t = dt * i;
            h = h - v * dt;
            v = v + (g - v * v * k / m) * dt;
        i++;
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        } while (h >= 0);

        printf ("Do you want to continue (y / n): ");
        scanf ("%s", &con);
        }while (con == 'y');

        fclose (rain drop);

return 0;
}
```