

```
/*
*****
* Forced damped Duffing oscillator
* Fast output with dynamic file name
* Choose section or flow
*****
*/

#include <stdio.h> // for printf & scanf
#include <math.h> // for sqrt & M_PI

/*
*****
*
* global variables
*
*****
*/
double amp, omega, phaseShift; // forcing

double k1, k3; // spring constants
double mass, viscosity; // inertia & viscosity

int nDtPerPeriod;
double dt; // integration time step

int nData; // number of data
int archiveOption;
enum {FLOW, SECTION}; // define constant options

/*
*****
*
* function prototypes
*
*****
*/

int main(void);
void Input(void);
void Initialize(void);
void Archive(void);
void ArchiveFlow(double *xArchive, double *vArchive);
void ArchiveSection(double *xArchive, double *vArchive);
double Acceleration(double x, double v, double t);
```