

employee database: user manual

The purpose of the employee database is for a human resources manager to manage employee information in a company. The functions allowed in this program are: adding, editing, and removing employees, searching for employees by employee number, and displaying employee information. All information is also saved to a save file named employeeDatabase.csv – more on this later.

There are two types of employees – part-time and full-time. There will be different methods of calculating income for these different employees.

1. startup

Upon opening a new instance of the employee database, the following will be seen:



The first time opening the employee database.

The number of employees will be indicated at the top (currently 0), along with a button to add employees. Clicking on this button will open up a new panel to the side to enter information for the new employee.

Underneath this button is an input to search for employees by employee number; further below is a table displaying the current employees in the system (currently empty).

2. adding employees

Clicking on the “add employee” button will bring up a new panel: the employee information editor. It looks something like this:

The initial view of the employee information editor.

A few input fields can be seen: first name (first), last name (last), employee type (type), employee gender (gender), employee number (emp. #), deductions rate (ded. rate), and work location (location). These fields will be required for both types of employees; after choosing a type, additional fields will appear below. For full-time employees, an input will appear for the yearly salary (salary). Part-time employees will have three new fields: hourly wage (wage), hours worked in a week (hours), and weeks worked in a year (weeks).

The confirm button will add the new employee to the system if all inputs are correct. These changes will be automatically updated in the main dashboard. After successfully adding the employee, the inputs will be reset. The new information will automatically be saved in the save file.

The reset button will reset all the information in the editor.

2.1 navigation in the editor panel

Although clicking on different fields to select them will work, keyboard shortcuts are often much faster for data entry. The cursor will be focused on the first name field upon entry; this is where the *focus* is.

This *focus* can be moved by pressing the “tab” key on the keyboard to move forward one field, and pressing “shift + tab” will move the focus to the previous field. In addition to this, pressing the “enter” key will move the focus to the next field as well. In this manner, the user can simply type in the desired information in the current field and press “enter” to continue. The enter key will also select the highlighted button on selection fields (before moving on to the next field), such as the employee type and gender.

type: full-time part-time gender: M F O

*“part-time” is in focus (highlighted); pressing enter will select the part-time employee.
Pressing enter will move the focus to “M” of the gender field.*

Using keyboard shortcuts and moving the focus will allow the user to progress until the focus reaches the “confirm” button. Pressing enter at this point will add the new employee to the system.

add employee

first: last:

type: full-time part-time gender: M F O

emp. #: ded. rate:

location: salary:

A completed full-time employee. The focus is on the confirm button.



Experienced users will notice that pressing “tab” will cycle the focus back to the first name field; ignoring the reset button. However, pressing “shift + tab” on the first name field will bring the focus to the last element, the reset button. This is intentional to prevent accidentally erasing information.

3. errors

There may be error notifications when adding a new employee. Caution signs will appear beside erroneous inputs and an error message will appear at the bottom explaining one of the errors. As the inputs are fixed, the error messages will change to reflect the updates.

The employee will not be added if there are errors in the inputs.

add employee

first:	<input type="text" value="T"/>		last:	<input type="text" value="User"/>	
type:	<input checked="" type="button" value="full-time"/>	<input type="button" value="part-time"/>	gender:	<input type="button" value="M"/> <input checked="" type="button" value="F"/> <input type="button" value="O"/>	
emp. #:	<input type="text" value="123456"/>		ded. rate:	<input type="text" value="a"/>	
location:	<input type="text" value="Here"/>		salary:	<input type="text" value="123"/>	

Error: The deductions rate must be a number between 0 and 1.

Errors in the inputs. The deductions error is currently being explained.

3.1 requirements for first name

The first name of the employee must be at least 2 characters long.

3.2 requirements for last name

The last name of the employee must be at least 2 characters long.

3.3 requirements for employee type

The employee type must be selected, either full-time or part-time.

3.4 requirements for employee gender

The employee's gender must be selected, either male (M), female (F), or other (O).

3.5 requirements for employee number

An employee number must be provided as a 6-digit integer; it must also be unique. A separate error message will appear if the employee number exists already.

3.6 requirements for deductions rate

The deductions rate must be a decimal between 0 and 1 (inclusive).

3.7 requirements for work location

The work location must be entered.

3.8 requirements for yearly salary (full-time employee)

The yearly salary must be a non-negative number.

3.9 requirements for hourly wage (part-time employee)

The hourly wage must be a non-negative number.

3.10 requirements for hours per week (part-time employee)

The hours per week worked by the employee must be between 0 and 168 inclusive.

3.11 requirements for weeks per year (part-time employee)

The weeks per year worked by the employee must be between 0 and 52 inclusive.

4. viewing employees in the table

With employees in the database, the main table will now display one employee per row:

employee database

there are currently 8 employees.

[add employee](#)

search by employee number...

employee #	first	last	gender	location	type
123456	test1	user1	O	work	full time
432042	test3	user3	O	work	full time
852934	test4	user4	O	work	full time
014351	test2	user2	O	work	full time
023145	test5	user5	O	work	full time
748905	test6	user6	O	work	full time

Test users are shown in the table.

The number at the top of the display shows the total number of employees; scroll down on the table to view more.

To show more detailed information about each employee, as well as edit current information and delete entries, click on the row of the desired employee.

employee #	first	last	gender	location	type
123456	test1	user1	O	work	full time
432042	test3	user3	O	work	full time
852934	test4	user4	O	work	full time
014351	test2	user2	O	work	full time
023145	test5	user5	O	work	full time
748905	test6	user6	O	work	full time

Hovering over a row will highlight the entire row. Click to open up the employee information panel.

5. employee information panel

After clicking on an employee in the table, an employee information panel will appear. This will display all the attributes of that specific employee; the net income will also be calculated.

For full-time employees, the calculation is:

$$\text{net income} = \text{yearly salary} \times (1 - \text{deductions rate})$$

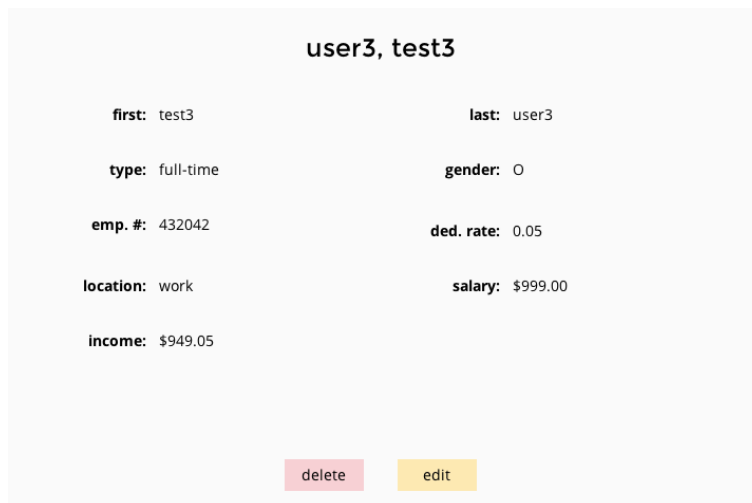
For part-time employees, the calculation is:

$$\text{net income} = \text{hourly wage} \times \text{hours per week} \times \text{weeks per year} \times (1 - \text{deductions rate})$$

Pressing the delete button will delete the employee and remove it from the save file.

Pressing the edit button will bring up an editing panel similar to the one seen when adding a new employee. However, the two buttons at the bottom of the panel are different – they are now cancel and save.

Cancelling the edits will return the user to the employee information panel without saving any edits; pressing save will save the changes and return to the information panel (if there are no errors present).



user3, test3

first: test3	last: user3
type: full-time	gender: 0
emp. #: 432042	ded. rate: 0.05
location: work	salary: \$999.00
income: \$949.05	

The employee information panel; all information for a specific employee can be seen here.

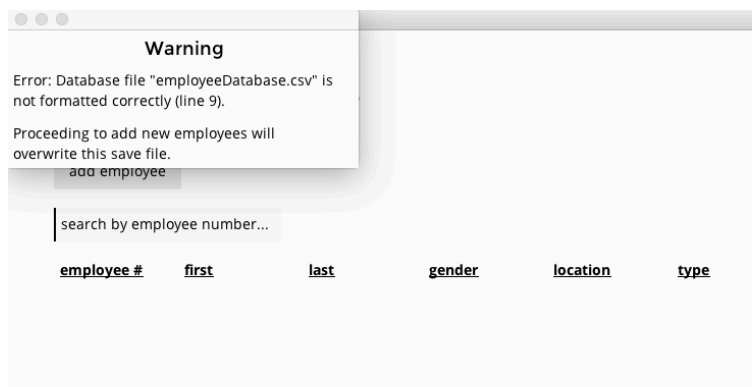
The edit view for an existing employee. Existing information prepopulates the input boxes; any edits are not saved until the save button is pressed.

Any changes to the employee database will automatically be saved in the save file, whether it be a deletion or edit.

6. the save file

A key feature of the employee database is the ability to save information in a separate file for loading existing employees. All employee data is stored in a save file named `employeeDatabase.csv`, which is a comma-separated file (csv) that can be edited in any text editor or spreadsheet program.

When loading up a save file, it must be named “`employeeDatabase.csv`” for the program to recognize the file. Within the file, there is a special format for storing the employee information – if there are any discrepancies in formatting, the program will return a warning message and the database will be empty.



A warning message for a faulty save file. Note that the database is empty, regardless of the contents of the faulty save file.

Attempting to add new employees will overwrite the faulty save file.

The warning message also shows which line in the save file is causing the error, allowing a manual fix for incorrectly formatted save files.

6.1 save file formatting

Full-Time Employee Data:
`0,employee_number,first_name,last_name,gender (M, F, O),work_location,deductions_rate,yearly_salary`

Full-time Employee Example:
`0,123456,test,user,M,here,0.1,100.0`

Part-Time Employee Data:
`0,employee_number,first_name,last_name,gender (M, F, O),work_location,deductions_rate,yearly_salary`

Part-Time Employee Example:
`1,654321,testing,using,F,there,0.05,10.0,10.0,10.0`

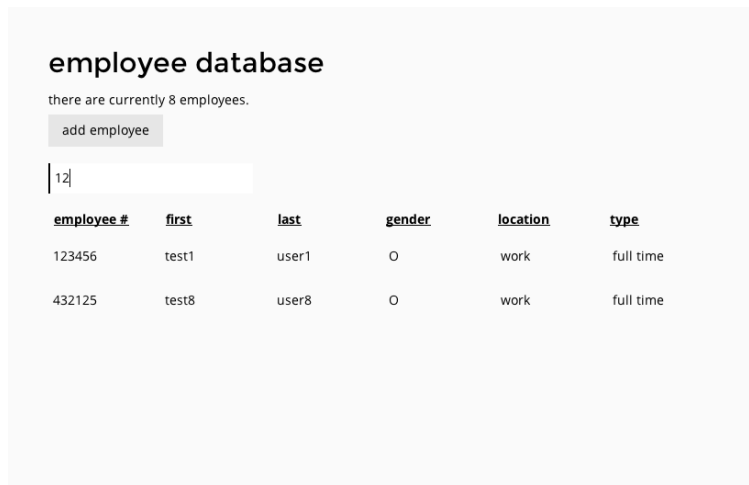
Layout examples for the save file employeeDatabase.csv

Each employee is represented by a row in the save file; in a text editor, all fields will be separated by a comma. In a spreadsheet program, the commas will be gone and each field will be in its own cell. Editing information in the save file directly is perfectly fine, as long as no errors are made when editing data.

7. filtering by employee number

When viewing employees in the main dashboard, it is a common requirement to search for an employee by their employee number. By entering numbers in the search field, employees are automatically filtered out as the user enters numbers. The employees displayed can be clicked on and edited as usual.

To return to the list of all the employees, just clear the search field.



The screenshot shows a web interface titled "employee database". It includes a status message "there are currently 8 employees.", an "add employee" button, and a search input field containing the number "12". Below the search field is a table with columns: employee #, first, last, gender, location, and type. The table displays two rows of data, representing the filtered results.

employee #	first	last	gender	location	type
123456	test1	user1	O	work	full time
432125	test8	user8	O	work	full time

Filtering a database of 8 employees down to 2 with a filter key of "12".