

EXERCISE - BASIC

Write a program that reads from a file named *app.txt* containing a list of different apps, as well as their developers, amount of gigabytes they require, and their price, like this:

APP	DEVELOPER	GIGABYTES	PRICE
iWarn	UC4M	212	0
Flowin	XCY	487	5
Downcow	Rafter	387	12
Newcast	Vrt	547	0
Hln	Vrt	345	10
Story	XCY	235	6
Miran	Rafter	421	7

Additionally, the program reads a file named *app_bought.txt* that contains a list of the apps that the user has already bought. This file has the same format as the file above, like this:

APP	DEVELOPER	GIGABYTES	PRICE
Newcast	Vrt	547	0
Miran	Rafter	421	7

Then, the program asks the user to introduce a) The maximum number of gigabytes that they would like to download and b) The maximum price they would like to pay. The program then creates a file called *app_available.txt* that contains all the apps that are available for the user to download (taking into account the two criteria mentioned above). If the app was already bought, this is mentioned in the file. The order of the apps in *app_available.txt* is the same as in *app.txt*. Finally, the program displays how many apps are available on screen. Important: Make sure that your output file does not have an empty line at the beginning or end of the file.

Example of execution:

```
What is the maximum number of gigabytes that you want to
download? 600
What is the maximum price that you want to pay? 10
File created successfully!
6 apps available
```

Content of *app_available.txt* after execution:

APP	DEVELOPER	GIGABYTES	PRICE
iWarn	UC4M	212	0
Flowin	XCY	487	5
Newcast	Vrt	547	0 - already bought
Hln	Vrt	345	10
Story	XCY	235	6
Miran	Rafter	421	7 - already bought

EXERCISE – ADVANCED

Make sure that the apps that the user has already bought always appear at the end of the file *app_available.txt*.

Example of execution:

```
What is the maximum number of gigabytes that you want to
download? 600
What is the maximum price that you want to pay? 10
File created successfully!
6 apps available
```

Content of *app_available.txt* after execution:

APP	DEVELOPER	GIGABYTES	PRICE
iWarn	UC4M	212	0
Flowin	XCY	487	5
Hln	Vrt	345	10
Story	XCY	235	6
Newcast	Vrt	547	0 - already bought
Miran	Rafter	421	7 - already bought

SOLUTION - BASIC

```
clear;
clc;

%OPEN APP.TXT
fid = fopen('app.txt', 'rt');
if fid < 0
    disp('Error opening file');
else
%READ FILE AND STORE CONTENTS
    i = 0;
    firstline = fgets(fid);
    while notfeof(fid)
        i = i + 1;
        info = textscan(fid, '%s %s %d %d', 1);
        listapps(i).app = info{1}{1};
        listapps(i).developer = info{2}{1};
        listapps(i).gigabytes = info{3}(1);
        listapps(i).price = info{4}(1);
    end
end
%CLOSE APP.TXT
fclose(fid);

%OPEN APP_BOUGHT.TXT
fid2 = fopen('app_bought.txt', 'rt');
if fid2 < 0
    disp('Error opening file');
else
%READ FILE AND STORE CONTENTS
    i = 0;
    firstline2 = fgets(fid2);
    while notfeof(fid2)
        i = i + 1;
        info = textscan(fid2, '%s %s %d %d', 1);
        listapps_bought(i).app = info{1}{1};
        listapps_bought(i).developer = info{2}{1};
        listapps_bought(i).gigabytes = info{3}(1);
        listapps_bought(i).price = info{4}(1);
    end
end
%CLOSE APP_BOUGHT.TXT
fclose(fid2);

%ASK FOR GIGABYTES AND PRICE
giga = input('What is the maximum number of gigabytes that you want
to download? ');
price = input('What is the maximum price that you want to pay? ');

%WRITE AVAILABLE APPS
fid3 = fopen('app_available.txt', 'wt');
if fid3 < 0
    disp('Error opening file');
else
    fprintf(fid3, firstline);
    counter = 0;
    bFirst = 1;
    for i = 1:length(listapps)
        if (listapps(i).gigabytes <= giga) && (listapps(i).price <=
price)
```

```

        j = 1;
        bFound = 0;
        while (j <= length(listapps_bought)) && (bFound == 0)
            if (strcmpi(listapps(i).app, listapps_bought(j).app)
~= 0)
                bFound = 1;
            else
                j = j + 1;
            end
        end
        if (bFound == 0)
            if (bFirst == 1)
                fprintf(fid3, '%s %s %d %d', listapps(i).app,
listapps(i).developer, listapps(i).gigabytes, listapps(i).price);
                bFirst = 0;
            else
                fprintf(fid3, '\n%s %s %d %d', listapps(i).app,
listapps(i).developer, listapps(i).gigabytes, listapps(i).price);
            end
            else
                if (bFirst == 1)
                    fprintf(fid3, '%s %s %d %d - already bought',
listapps(i).app, listapps(i).developer, listapps(i).gigabytes,
listapps(i).price);
                else
                    fprintf(fid3, '\n%s %s %d %d - already bought',
listapps(i).app, listapps(i).developer, listapps(i).gigabytes,
listapps(i).price);
                end
            end
            counter = counter + 1;
        end
    end
    disp('File created successfully!');
end
fclose(fid3);
fprintf('%d apps available\n', counter);

```

SOLUTION - ADVANCED

```
clear;
clc;

%OPEN APP.TXT
fid = fopen('app.txt', 'rt');
if fid < 0
    disp('Error opening file');
else
%READ FILE AND STORE CONTENTS
    i = 0;
    firstline = fgets(fid);
    while notfeof(fid)
        i = i + 1;
        info = textscan(fid, '%s %s %d %d', 1);
        listapps(i).app = info{1}{1};
        listapps(i).developer = info{2}{1};
        listapps(i).gigabytes = info{3}(1);
        listapps(i).price = info{4}(1);
    end
end
%CLOSE APP.TXT
fclose(fid);

%OPEN APP_BOUGHT.TXT
fid2 = fopen('app_bought.txt', 'rt');
if fid2 < 0
    disp('Error opening file');
else
%READ FILE AND STORE CONTENTS
    i = 0;
    firstline2 = fgets(fid2);
    while notfeof(fid2)
        i = i + 1;
        info = textscan(fid2, '%s %s %d %d', 1);
        listapps_bought(i).app = info{1}{1};
        listapps_bought(i).developer = info{2}{1};
        listapps_bought(i).gigabytes = info{3}(1);
        listapps_bought(i).price = info{4}(1);
    end
end
%CLOSE APP_BOUGHT.TXT
fclose(fid2);

%ASK FOR GIGABYTES AND PRICE
giga = input('What is the maximum number of gigabytes that you want
to download? ');
price = input('What is the maximum price that you want to pay? ');

%WRITE AVAILABLE APPS
fid3 = fopen('app_available.txt', 'wt');
if fid3 < 0
    disp('Error opening file');
else
    fprintf(fid3, firstline);
    counter = 0;
    bFirst = 1;
    for i = 1:length(listapps)
        if (listapps(i).gigabytes <= giga) && (listapps(i).price <=
price)
```

```

        j = 1;
        bFound = 0;
        while (j <= length(listapps_bought)) && (bFound == 0)
            if (strcmpi(listapps(i).app, listapps_bought(j).app)
~= 0)
                bFound = 1;
            else
                j = j + 1;
            end
        end
        if (bFound == 0)
            listapps(i).bought = 0;
            if (bFirst == 1)
                fprintf(fid3, '%s %s %d %d', listapps(i).app,
listapps(i).developer, listapps(i).gigabytes, listapps(i).price);
                bFirst = 0;
            else
                fprintf(fid3, '\n%s %s %d %d', listapps(i).app,
listapps(i).developer, listapps(i).gigabytes, listapps(i).price);
            end
            else
                listapps(i).bought = 1;
            end
            counter = counter + 1;
        end
    end
    for i = 1:length(listapps)
        if (listapps(i).bought == 1)
            if (bFirst == 1)
                fprintf(fid3, '%s %s %d %d - already bought',
listapps(i).app, listapps(i).developer, listapps(i).gigabytes,
listapps(i).price);
                bFirst = 0;
            else
                fprintf(fid3, '\n%s %s %d %d - already bought',
listapps(i).app, listapps(i).developer, listapps(i).gigabytes,
listapps(i).price);
            end
        end
    end
    disp('File created successfully!');
end
fclose(fid3);
fprintf('%d apps available\n', counter);

```