COMP10120 Assignment 1

Heart Health

Create a program in C that:

Offers the user a choice of a BMI (Body Mass Index) calculation, a blood pressure assessment, or a cardiac risk score assessment and implements **separate functions** for each of these options.

Please format all your code according to this style guide:
https://codingart.readthedocs.io/en/latest/c/Formatting.html

Part 1 (20%)

If the user selects BMI calculation, the program should request their weight in kilograms and height in metres and returns their BMI and Weight Category according to the criteria below.

The formula is: BMI = kg/m²

Where kg is a person's weight in kilograms and m is their height in metres. The result is interpreted as follows:

BMI	**Weight Category**
<18.5	Underweight
>= 18.5 & < 25	Normal
>= 25 & < 30	Overweight
>= 30	Obese

Part 2 (20%)

If the user selects blood pressure assessment, the program should request five blood pressure readings (both a systolic and diastolic measures (in mmHg)) store these readings in an array, calculate the average systolic and average diastolic reading and determines if the blood pressure is high, pre-high, ideal or low based on the data on the chart shown here.

Part 3 (60%)

If the user selects cardiac risk assessment, ask the user for the minimum amount of information to calculate their ERICE risk score category (low, mild, moderate, moderate-high, high or very high) according to the charts on the following pages.

The ERICE score is a native cardiovascular risk score for the Spanish population, which gives the risk of a first fatal or non-fatal cardiac event in the next ten years. You can assume that the patient is not taking antihypertensive treatment/medication. SBP means systolic blood pressure, as in the blood pressure question.

Implement appropriate error handling, and provide a nice output with the results. Things to consider for this and all programs:

- The data types to use in the program.
- How to handle edge cases.
- The instructions needed for users.
- Appropriate Error handling with input (e.g. an impossible height is entered)- There is no need to check for data types.
- How to format the output in a user-friendly way.
- Description of the program/author in the header.
- The use of white space.
- The use of comments.
- The efficiency. For example, is longhand used where a loop would be better or are unnecessary variables created.

This program should be submitted via Brightspace as a single c file. The naming convention is 123456A1.c where 123456 is your student number and A1 denotes Assignment 1.

Submissions should be made as a single .c file that runs in C99 on Brightspace

		Men without antihipertensive treatment								Men without antihipertensive treatment							
		Diabetics								Non diabetics							
		Non smokers				Smokers				Non smokers				Smokers			
Cholesterol		< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8
≥ 80	≥ 180	56	57	58	55	66	67	69	65	46	47	48	45	56	57	58	55
	160-180	54	54	56	52	64	65	67	63	44	45	46	43	54	54	56	52
	140-160	51	51	53	49	61	62	64	60	41	42	44	40	51	51	53	49
	< 140	38	38	40	36	47	47	49	45	30	30	32	30	38	38	40	36
70-79	≥ 180	35	35	37	34	43	44	45	42	27	28	29	27	35	35	37	34
	160-180	33	33	35	32	41	42	43	40	26	26	28	25	33	33	35	32
	140-160	31	31	33	30	39	39	41	37	24	25	26	23	31	31	33	30
	< 140	22	22	23	21	28	28	29	27	17	17	18	16	22	22	23	21
60-69	≥ 180	24	24	25	23	30	30	32	32	18	19	19	18	24	24	25	23
	160-180	22	23	24	22	28	29	30	30	17	18	18	17	22	23	24	22
	140-160	21	21	22	20	27	27	28	26	16	16	17	15	21	21	22	20
	< 140	14	15	15	15	19	19	19	18	11	11	12	11	14	15	15	15
50-59	≥ 180	12	12	13	12	16	16	17	15	9	10	10	10	12	12	13	12
	160-180	12	12	12	11	15	15	16	16	9	9	9	9	12	12	12	11
	140-160	11	11	11	10	14	14	14	13	8	8	9	8	11	11	11	10
	< 140	7	7	8	7	9	10	10	9	6	6	6	5	7	7	8	7
40-49	≥ 180	5	5	5	5	6	6	6	6	3	3	4	3	4	5	5	5
	160-180	4	4	5	5	6	6	6	5	3	3	3	3	4	4	5	5
	140-160	4	4	4	4	5	5	5	5	3	3	3	3	4	4	4	4
	< 140	3	3	3	3	3	4	4	3	2	2	2	2	3	3	3	3
30-39	≥ 180	2	2	3	2	3	3	3	3	2	2	2	2	2	2	3	2
	160-180	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2
	140-160	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2
	< 140	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1
Cholesterol		< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8	< 5.2	5.2-6.4	6.5-7.7	≥ 7.8

SBP

- Low: < 5
- Mild: 5% to 9%
- Moderate: 10% to 14%
- Moderate-high: 15% to 19%
- High: 20% to 29%
- Very high: ≥ 30%

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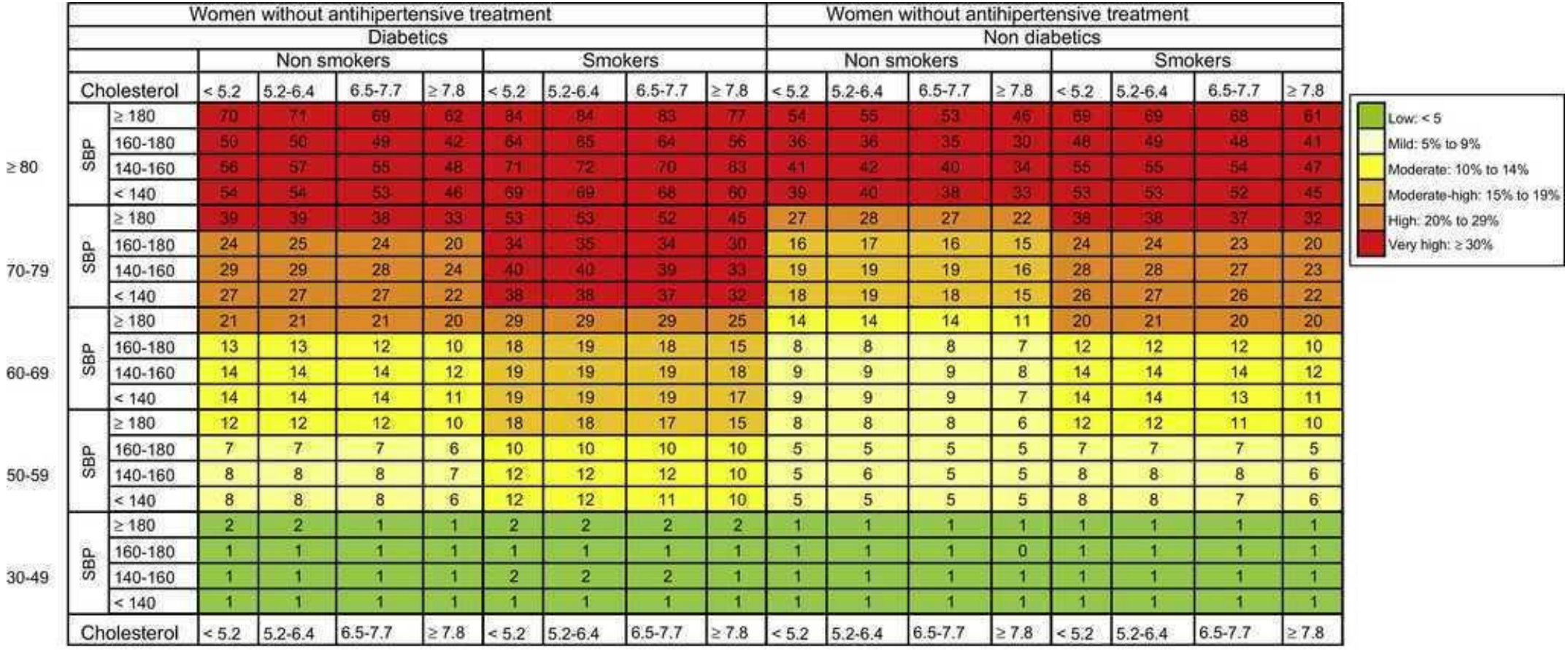

Rev Esp Cardiol. 2015;68:205–15