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Advanced Programming Semester B 5784

**First Quiz – Part B**

In this part you are required to answer one question. You may begin this part only after you completed ans submitted the first part of the quiz. It is advisable, though not required, to do the programming in Visual Studio.

Submission deadline is **9:50**. It is advised to spend no more than 30 minutes solving the question and submit at the end of 30 minutes (at 9:40) to allow 10 minutes for submission, in case of technical difficulties.

The submission format for this question is similar to that of the homework. Make sure to separate your code correctly into files and submit all the relevant files. During the quiz there will be no automatic evaluation.

In a clinic there is a queue of patients waiting for a doctor. Every patient who enters the waiting room receives a number and enters the queue. We are interested in implementing a system for managing the queue. For every doctor, the name of the doctor is saved, along with the number of patients waiting for him and an array of the patient numbers.

Declare and implement a class called Doctor.

The fields in the class are:

- The name of the doctor (a character string with no more than 24 characters).
- The number of patients currently waiting for the doctor.
- An array containing the patient numbers of those waiting for the doctor, in the order of their arrival.

Add to the class at least the following methods:

- constructor
  - a constructor that receives three arguments (the name, the number of patients waiting, the array of waiting patients) and initializes the object accordingly.
    The constructor must include the following statement:
    ```
    cout << "In constructor" << endl;
    ```
- destructor
  - a destructor.
    The destructor must include the following statement:
    ```
    cout << "In destructor" << endl;
    ```
- print
  - a method that prints the name of the doctor and in the same line the numbers of the patients waiting for him (separated by a single space).
- next
  - a method that removes from the array the next patient number in line and returns it.

Note: More method may be added as necessary.

The following main program is provided to test your code. It is mandatory to include this main program in your submission, exactly as provided – you are not allowed to make any changes!!

```
int main() {
	int size;
	cin >> size;
	int* patients = new int[size];
	for (int i = 0; i < size; i++)
		patients[i] = i + 100;
	char drName[25];
	cin >> drName;

	Doctor doctor(drName, size, patients);
	doctor.print();

	cout << "next patient:" << doctor.next();
	cout << endl;
	doctor.print();
	return 0;
}
```

For example, given the following input:

```
3
McStuffins
```

The expected output is:

```
In constructor
patients waiting: 100 101 102
next patient:100
patients waiting: 101 102
In destructor
```

The complete code must be submitted in the submission box *Midterm Part B* before **9:50**, therefore it is highly advised to submit your solution earlier.

At 9:50 a second submission box will open for late submissions. It will close at 9:55 and any submission to that box will have a grade reduction of 10%.

At 9:55 a third submission box will open for late submissions. It will close at 10:00 and any submission to that box will have a grade reduction of 25%.

After 10:00 no more submissions will be accepted.

Good Luck!