code.sprint MT

TASK BOOKLET

- Final Round -

Post-Secondary Category

2022

ICE Malta

GOVERNMENT OF MALTA
RESEARCH AND INNOVATION
MINISTRY FOR EDUCATION, SPORT, YOUTH
DIRECTORATE FOR LEARNING AND ASSESSMENT PROGRAMMES

Final Round Schedule

- Task Analysis (10 min)
- Task Development (90 min)
- Interval (15 min)
- Continuation of Task Development (90 min)
- Task Submission (5 min)
- **TOP 3 CODE SPRINTERS ANNOUNCED!**

Benjie Auto-Repair (180 minutes)

Benjie's Auto Repair Garage is a well-known and an established car repair workshop that offers car maintenance, services, and repairs.

Benjie, the sole owner of this business employs the following specialised auto mechanics.

Mechanic Name	Specialisation	Rate/hr
Jason Borg	Diesel engine expert	€45
Peter Camilleri	Petrol engine expert	€40
Jack White	Fuel injection expert	€35
Alexia Brown	Auto electricity & electronics	€60
Jack Berry	Vehicle Air-condition	€55
Jenny Attard	Hybrid vehicles	€70
Charlie Briffa	Electric vehicles	€75

Table 1: List of Mechanics

At the front desk, a garage administrator manages the daily operations of the business which include recording new client details, creating repair job sheets, and handles bills.

Develop a system which will simulate the administration processes needed for this auto-repair business. The system should include a main menu with the following options: 1) Mechanics, 2) Clients, 3) Repair Job Sheets, 4) Reports & Statistics, and 5) Exit.

Functionality #1: Mechanics

1. Inputting and storing records of all the mechanics as per Table 1.
2. View: 1) list of mechanics, and 2) the Jobs assigned to them.

Functionality #2: Customers

1. Viewing list of clients.
2. Inputting and storing records of new clients.
3. Clients' details must include ID, Name, Surname, Contact Number, and e-mail
4. Validation is required on all fields as follows:
   - Name and Surname must include letters only and be of not less than 3 characters,
   - ID must be 7 digits followed by letter and unique,
   - Contact number must include 8 digits only, and
   - Email address must include an @ sign.

Functionality #3: Repair Job Sheets.

1. Each job sheet created must be assigned to a customer.
2. A Job sheet should be inputted in the following logical sequence:
   - Car registration number.
   - Make of car.
   - Car model.
   - Category: to choose from Air Condition, Diesel Engine, Electric Engine, Electricity & Electronics, Fuel Injection, Hybrid Engine, Petrol Engine.
   - Description of problem. *For example, air condition is not producing cold air.*
   - Mechanic: A relevant mechanic will be assigned automatically according to the issue chosen. *For example, if the issue concerns a Diesel Engine, Jason Borg will be assigned this task automatically.*
   - Date: relevant mechanic cannot have more then one job sheet per day. Validation must therefore include mechanic availability, date not being less than the auto timestamp (current date), and must be in the form dd/mm/yy.
   - Repair job sheet status – to choose from Pending or Complete. This can be modified after the job sheet has been created. However, once it is set as Complete it can then never be modified again.
   - Generate Bill: By default, the bill is left empty. The bill is calculated only if the job sheet status is set to complete. The bill includes the addition of the expenses incurred for any auto-parts used and the time taken for the mechanic to finish the job in hours (as per mechanic hourly rate). The result is then multiplied by 1.5.

     *For example, parts used amount to €180, it took the mechanic Jenny Attard 4 hours to fix the problem. Therefore, cost is (180 + (70x4)) * 1.5 = €690*

Functionality #4: Reports & Statistics.

1. Search for job sheets by customer ID.
2. Search for job repair sheet/s by car registration number.
3. List all pending repair job sheets.

Name the class containing the main method **RunApp.**

Submit your program in a folder named **Benjie_Repairs**

Functionality #5: Validation

To enhance the user experience, warning messages should be used when invalid inputs or non-existing options are entered.

Assessment Rubric

Program Functionality	User-Friendly Interface	Proper use of Comments	Proper Conventions (Camel case, meaningful var names etc.)	Name of Folder & Class/es	User Input	Suitable Prompts / Messages displayed
Generate Bill	Search of job Sheets	Proper use of data structures and/or files for storing records	Modular Code	Code Efficiency	**Maximum Score: 38** **+ 2 for every extra feature.**	
Validations						
Options in Menus	Unique Customer ID, contact number and email	Customer Name & Surname	Customer ID	Customer Contact Number	Customer Email	Report Job Sheet Date
0 – Not Satisfactorily | 1- Partly Satisfactorily | 2- Entirely Satisfactorily						


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LeoVegas


FreeHour