Gadget Insurance Policy Prototype

Background

Gadget Protector requires a simple insurance premium calculator prototype to demonstrate key features.

The basic insurance premium is calculated based on the number of gadgets and the value of the most expensive item as listed in the Monthly Premiums table below.

Basic Monthly Premiums

Number of Items	Maximum Value of Most Expensive Gadget		
	£500	£800	£1,000
1	5.99	7.15	8.30
2 - 3	10.99	13.35	15.55
4 - 5	15.99	19.60	22.82

Example Data

Number of Items	Most Expensive Item	Monthly Premium
2	£600	£13.35
4	£200	£15.99
6	£800	Reject
4	**£1,200**	Reject

Gadget Protector charges an excess (the amount the client will have to pay) of £30 for each claim. Clients can choose to increase this up to £70.00 (in multiples of 10) to reduce the premium – for each £10 increase the premium is reduced by 5%.

The default payment term is monthly, however, customers can choose to pay annually to receive an additional 10% discount.

As well as entering the inputs identified above, the user will also provide the following:

- Policy reference number (eg: JB123A – two letters, three digits and a letter).

- Client name (eg: J Smith – maximum of 20 characters)

Once the validation/calculation has been completed, a **policy summary** should be output:

```
+==========================================+
|                                          |
|  Client: J Smith                         |
|                                          |
|    Date: 12 Oct 2018         Ref: JF427A |
|   Terms: Annual            Items: Four   |
|  Excess: £30.00                          |
|                                          |
|  Annual                  Limit per       |
| Premium: £246.36           Gadget: 1000  |
|                                          |
+==========================================+
```

Notes:
- Items must be displayed as a word (One, Two, etc). If the number exceeds 5, it should be shown as a numeric value (eg: 15).
- Limit per gadget must show the limit being applied (eg: for 900 it will show 1000).
- For monthly payment the text "Annual Premium" should be replaced with "Monthly Premium"

- For rejected policy requests, the Premium and Limit per Gadget lines should be replaced by an appropriate message.

Requirements

A prototype console application (no GUIs or GUI dialogs) is required. Your prototype should display a menu similar to the following:

1. Enter new Policy
2. Display Summary of Policies
3. Display Summary of Policies for Selected Month
4. Find and display Policy
0. Exit

Once an option is selected and processed, the menu should be redisplayed until the exit option is selected. Each operation is described below:

❖ **Option 1: Enter new Policy**

- Ask the user for the inputs: client name, reference, number of gadgets, most expensive gadget value, excess and payment terms (annual or monthly).

  Note: All inputs should be validated.

- Calculate the monthly/annual premium.

- Display the policy summary (it **must** use the format in the example).

- Change the Enter new Policy above, to Save (append) the data for all policies (including rejected ones) to the text-based summary file (policy.txt). Each line in the file must hold the details for a single policy with the following information separated by spaces:

  - Policy Date (today's date - see technical details for format).
  - Policy Reference Number.
  - Number of Items (numeric value).
  - Most expensive gadget value (in pence).
  - Excess.
  - Premium (in pence) – use -1 for rejected policies.
  - Payment Terms (A for annual, M for Monthly or R for rejected policies).
  - Client Name

❖ **Option 2: Summary of Policies**

User is asked to select the current (policy.txt) or archive (archive.txt) policies and a summary of the following is displayed:

- Total number of policies (accepted and rejected).
- Average number of items for the accepted policies.

- Average monthly premium for the accepted policies.

- Total number of policies per month (assume the policy file only includes data for the current year). Show an entry for all twelve months even those that have an entry of zero.

- A sample archive file can be downloaded from Blackboard. For the supplied archive file the output should look similar to the following:

```
Total Number of policies: 1000
Average number of items (Accepted policies): 3
Average Monthly Premium: 12.75
Number of Policies per Month (inc. non-accepted):

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec
85   73   87   90   85   93   81   91   77   73   88   77
```

❖ **Option 3: Summary of Policies for Selected Month**

The user is asked to select the current or archive policies and to enter a month. A summary of policies (as specified in option 2) should then be displayed for the specified month.

❖ **Option 4: Find and Display Policy**

The user is asked to select the current or archive policies and enter the search text. The selected file should be searched for any matches (full or partial) against the reference or client name. For example entering **NS** would match against reference number "**NS**123A" and Client Name "F Tow**ns**end".

For each matching entry, the policy summary (see option 1) should be displayed.

❖ **Option 0: Exit**

Display an appropriate message and exit the application.