

#### **Q6. Malaysian ID Card Number (40 marks):**

The Malaysian Identity Card (MIC) is the compulsory identity card for Malaysian citizens aged 12 and above. The current format of the MIC Number features 12 digits separated into three block by hyphens, as illustrated below:

**YYMMDD-PB-###G**

The first six digits **YYMMDD** indicate the person's **Birthdate** in the ISO 8601:2000 format. That is,

**YY: Birth Year**

**MM: Birth Month**

**DD: Birth Day**

For example, a person born on 11 May 1990 would have 900511 as the first six digits of his/her MIC. On the other hand, a person born on 03 February 2001 would have 010203 as the first six digits.

**PB**, the seventh and eighth digit, is based on the place of birth of the person.

**###**, the ninth through eleventh digit, is the generic special number generated by the National Registration Department of Malaysia's computer system.

**G**, the 12th digit represents the gender of the person. The odd numbers 1 / 3 / 5 / 7 / 9 denote male while the even numbers 2 / 4 / 6 / 8 / 0 denote female.

In this question, you will first receive several MIC Numbers, and then you are required to sort them **in ascending order** according to the three priorities given.

Moreover, the sorting priorities will only be based on **Birthdate**, **Birth Year**, **Birth Month**, **Birth Day**, **Gender with Male first**, or **Gender with Female first**.

For example, if the received priorities are, in sequence, (i) Birth Month, (ii) Gender with Female first, (iii) Birthdate. Then the sequence should be sorted in an ascending order by (i) Birth Month; (ii) if same Birth Month, then sorted by Gender with Female first. (iii) if same Birth Month and gender, then sorted by Birthdate.

Please note also the oldest age is 80 years old among all the MIC Numbers received

#### **Write a programme to**

**Input, in sequence,**

- A string that contains a number of MIC Numbers; whereby a semicolon (;) is used to separate an MIC Number from the next MIC Number.
- Three priorities to sort the above MIC Numbers.

**Output, in sequence,** the sorted (in an ascending order) MIC Numbers based on the three priorities given. Each of the outputs should follow the format of

**MIC Number <space> Birth Day with two digits <space> Birth Month in English <space> Birth Year in 4 digits <space> Gender**

For example, a valid output should have the following format:

**790129-02-5810 29 January 1979 Female**

## 试题 6. 马来西亚身份证号码 (40 marks) :

在马来西亚，所有十二岁或以上的国民必须拥有身份证。每一个身份证都有一个特有、由 12 个数字组成的号码。这些数字被分成三个区段，两个区段之间有个连字号连接，形成以下格式：

**YYMMDD-PB-###G**

首六个数字 **YYMMDD** 是该人士的生日 (**Birthdate**)，以 ISO 8601:2000 的格式显示。即是：

**YY: Birth Year** (出生年)

**MM: Birth Month** (出生月)

**DD: Birth Day** (出生天)

例如，若一个人出生于 11 May 1990，则其身份证的首六位数为 900511。又比如另一个人出生于 03 February 2001，则其身份证的首六位数为 010203。

第七及第八个数字，**PB**，是该人士出生地点的代码。

第九至第十一个数字，**###**，是国家注册局的电脑系统所产生的特别数字。

第十二个数字，**G**，代表了该名人士的性别。奇数 1/3/5/7/9 表示该名为男性 (Male) 而偶数 2/4/6/8/0 表示女性 (Female)。

在这个试题里，你将会收到几个马来西亚身份证号码。然后你必须根据指定的三个**优先属性**，以小到大排列这些身份证号码。

考虑优先级时，我们只考虑以下属性：**Birthdate** (生日)，**Birth Year** (出生年)，**Birth Month** (出生月)，**Birth Day** (出生天)，**Gender with Male first** (性别以男性优先)，以及 **Gender with Female first** (性别以女性优先)。

举例来说，假如优先属性依序为 (i) Birth Month, (ii) Gender with Female first, (iii) Birthdate。那当你在做由小到大的排列时，必须先考虑 (i) Birth Month; (ii) 若有相同的 Birth Month, 则先考虑性别 (Gender) 并以女性为优先; (iii) 若 Birth Month 和 性别都一样，那就按照 Birthdate 来排列。

此外，这些身份证中年龄最长者不超过 80 岁。

### 试写一程式以

#### 依序输入

- 一个包含数个马来西亚身份证号码的字串，其中两个号码之间由一分号 (;) 间隔。
- 三个 (依序) 排列这些身份证号码的优先属性。

**依序输出** 排列好的身份证号码。每一个输出必须严格遵守以下格式：

身份证号码 <空格> 两位数的出生天 <空格> 英文的出生月份 <空格> 四位数的出生年 <空格> 英文的性别

例如，以下就是一个有效的输出

**790129-02-5810 29 January 1979 Female**

## Test Cases

Input (输入)	Output (输出)
960828-08- 6312;020606-10- 0473;000814-06- 0431;790129-02- 5810;450831-66-5893 Birth Month Gender with Female first Birthdate	790129-02-5810 29 January 1979 Female 020606-10-0473 06 June 2002 Male 960828-08-6312 28 August 1996 Female 450831-66-5893 31 August 1945 Male 000814-06-0431 14 August 2000 Male
950828-08- 6312;010606-10- 0473;000914-06- 0431;790106-02- 5810;451231-66- 5893;581206-66-5895 Gender with Male first Birth Day Birthdate	581206-66-5895 06 December 1958 Male 010606-10-0473 06 June 2001 Male 000914-06-0431 14 September 2000 Male 451231-66-5893 31 December 1945 Male 790106-02-5810 06 January 1979 Female 950828-08-6312 28 August 1995 Female
980828-08- 6312;010606-10- 0473;980814-06- 0431;980829-02- 5810;050331-66- 5893;980730-66- 5010;050325-01- 0215;550622-01-0481 Birth Year Gender with Male first Birthdate	550622-01-0481 22 June 1955 Male 980814-06-0431 14 August 1998 Male 980730-66-5010 30 July 1998 Female 980828-08-6312 28 August 1998 Female 980829-02-5810 29 August 1998 Female 010606-10-0473 06 June 2001 Male 050325-01-0215 25 March 2005 Male 050331-66-5893 31 March 2005 Male
980828-08- 6312;010606-10- 0473;980814-06- 0431;980829-02- 5810;050331-66- 5893;980730-66-	050325-01-0215 25 March 2005 Male 050331-66-5893 31 March 2005 Male 550622-01-0481 22 June 1955 Male 010606-10-0473 06 June 2001 Male

5010;050325-01-0215;550622-01-0481 Birth Month Gender with Female first Birthdate	980730-66-5010 30 July 1998 Female 980828-08-6312 28 August 1998 Female 980829-02-5810 29 August 1998 Female 980814-06-0431 14 August 1998 Male
980828-08-6312;010606-10-0473;980814-06-0431;980829-02-5810;050331-66-5893;980730-66-5010;050325-01-0215;550622-01-0481 Gender with Male first Birth Day Birthdate	010606-10-0473 06 June 2001 Male 980814-06-0431 14 August 1998 Male 550622-01-0481 22 June 1955 Male 050325-01-0215 25 March 2005 Male 050331-66-5893 31 March 2005 Male 980828-08-6312 28 August 1998 Female 980829-02-5810 29 August 1998 Female 980730-66-5010 30 July 1998 Female
990515-01-5153;990726-08-7231;990822-01-6904;010922-08-0894 Birth Year Gender with Male first Birthdate	990515-01-5153 15 May 1999 Male 990726-08-7231 26 July 1999 Male 990822-01-6904 22 August 1999 Female 010922-08-0894 22 September 2001 Female
020614-01-0884;990615-01-5153;990626-08-7231;990622-01-6904;010622-08-0894;020615-08-0908;020630-08-0536 Birth Month Gender with Female first Birthdate	990622-01-6904 22 June 1999 Female 010622-08-0894 22 June 2001 Female 020614-01-0884 14 June 2002 Female 020615-08-0908 15 June 2002 Female 020630-08-0536 30 June 2002 Female 990615-01-5153 15 June 1999 Male 990626-08-7231 26 June 1999 Male

000416-01-0555;990515-01-5154;970430-66-5810;980416-08-7743;000417-06-0733	980416-08-7743 16 April 1998 Male
Gender with Male first	000416-01-0555 16 April 2000 Male
Birth Day	000417-06-0733 17 April 2000 Male
Birthdate	990515-01-5154 15 May 1999 Female
	970430-66-5810 30 April 1997 Female