

# **Chapter 1.**

## **Introduction**

# Computer : past

**금성컴퓨터 금성사**

intel inside  
\* Intel inside 마크는 Intel사의 등록상표임.

■ 본사·제품구입 및 문의처 : 서울시 마포구 공덕동 275(적기음성 아파트앞)  
 • 컴퓨터전시장 (02) 705-3071 • 유동영업부 (02) 705-3330~3344  
 • 직판영업부 (02) 705-1274 • 대형유통영업 (02) 705-3266  
 • 부산영업소 (051) 87-5969 • 대구영업소 (053) 654-7211  
 • 광주영업소 (062) 571-8883 • 대전영업소 (042) 254-2360  
 • 교육지원센터 (02) 705-3456-9 • 고객지원센터 (02) 705-3500

■ 본체 • CPU: I 80386 SX (16MHz) • 기본 MEMORY: 2MB  
 • HDD: 40MB • 비디오모드: Super VGA  
 • 마우스 기본제공 • 한글 MS-DOS 5.0  
 • 한글윈도우 3.0 • Key Board Trainer  
 • 금성홈소프트웨어

■ 가격: 1,450,000 (VAT, 모니터 별도)

**프로그램관리** 전자수첩, 현모양처, 몽당연필, 만사형통, 가족오라관, 예절생활, 위미생활, 컴퓨터교실

**가정정보관리** 전화번호부, 주요전화번호, 일일생활표, 세계시차, 단위환산, 음력절기, 가정예모, 기념일관리, 생활법률, 손수와 호칭, 서식작성, 하나워드프로세서

**주부용프로그램** 가계부, 요리백과, 육아정보, 상처치기, 성적관리

**자녀용프로그램** 일기쓰기, 수업시간표, 생활계획표, 키보드트레이너

**여가생활프로그램** 자동차상식, 잠해몽, 토정비결, 손금풀이, 유모아, 숫자맞추기, 등산, 낚시

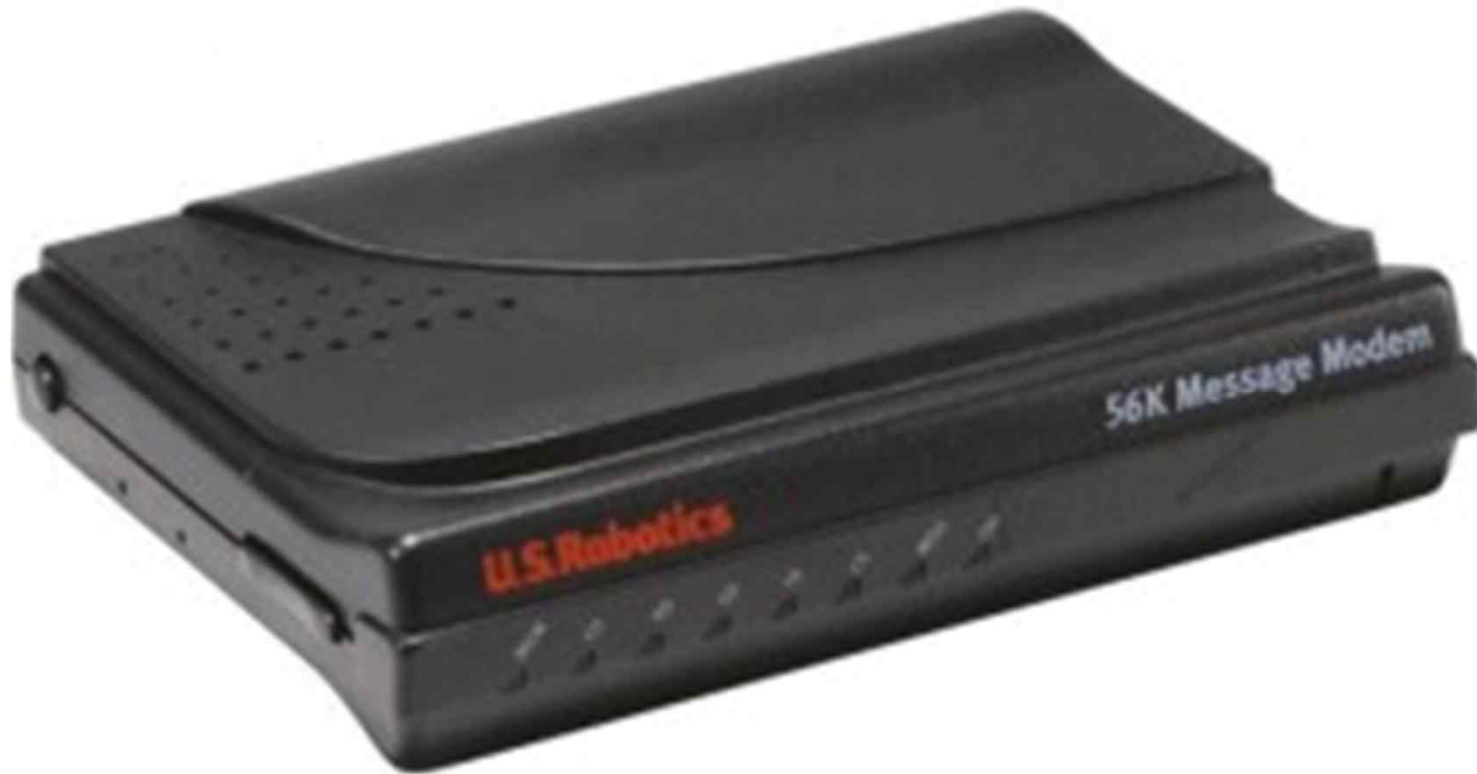
# Computer : past

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# Computer : past

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# Computer : past

**Nownuri**  
BBS

게시판

<http://www.nownuri.net>

[ 베스트게시판 ]

[ 정보 마당 ]

[ 여럿이 함께 ]

[ SPECIAL ]

1. 열린광장  
2. 우스개  
3. 게임누리  
4. 스포츠  
5. 영화나라  
6. 컴퓨터 Q/A  
7. 연예/오락

11. 음식남녀  
12. 다이어트  
13. 나의 멋/패션  
14. 음악/오디오  
15. 자동차  
16. 여행/등산  
17. 가볼만한 곳

21. 반짝 아이디어  
22. 홍보마당  
23. 병영추억  
24. 카풀<CARPOOL>  
25. 불가사의  
26. 공개사랑 고백  
27. 황설수설

31. 나우장터  
32. 글마당  
33. 나우메시지  
34. 대학인 나눔터

인터넷 나우누리 게시판 ▶<http://www.nownuri.net/newbbs/>

명령어안내<C> 도움말<H> 초기화면<T> 이동<GO,P,A,N,B> 종료<X>  
선택>

# Computer : present

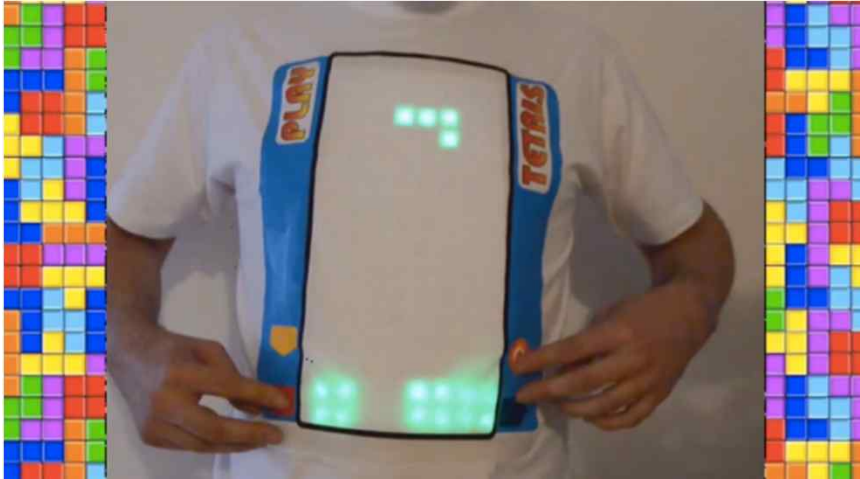


The screenshot shows the official website of Hankuk University of Foreign Studies (HUFS). The header includes the university's name in Korean and English, along with navigation links like 'Join', 'Login', 'Webmail', '종합정보시스템', 'e-Class', and 'Sitemap'. The main banner features the text 'VISION 2010' and a description of the university's vision. Below this, there are sections for 'Hufs Today', 'Global Lounge', and 'HOT link'. A sidebar on the left contains links for '학교정보' (University Information), '대학/대학원' (University/Graduate School), '대학생활' (University Life), and '커뮤니티' (Community). The bottom of the page includes a search bar, a 'HUFS News' section, and a footer with contact information and a copyright notice for 2007.



# Computer : future?

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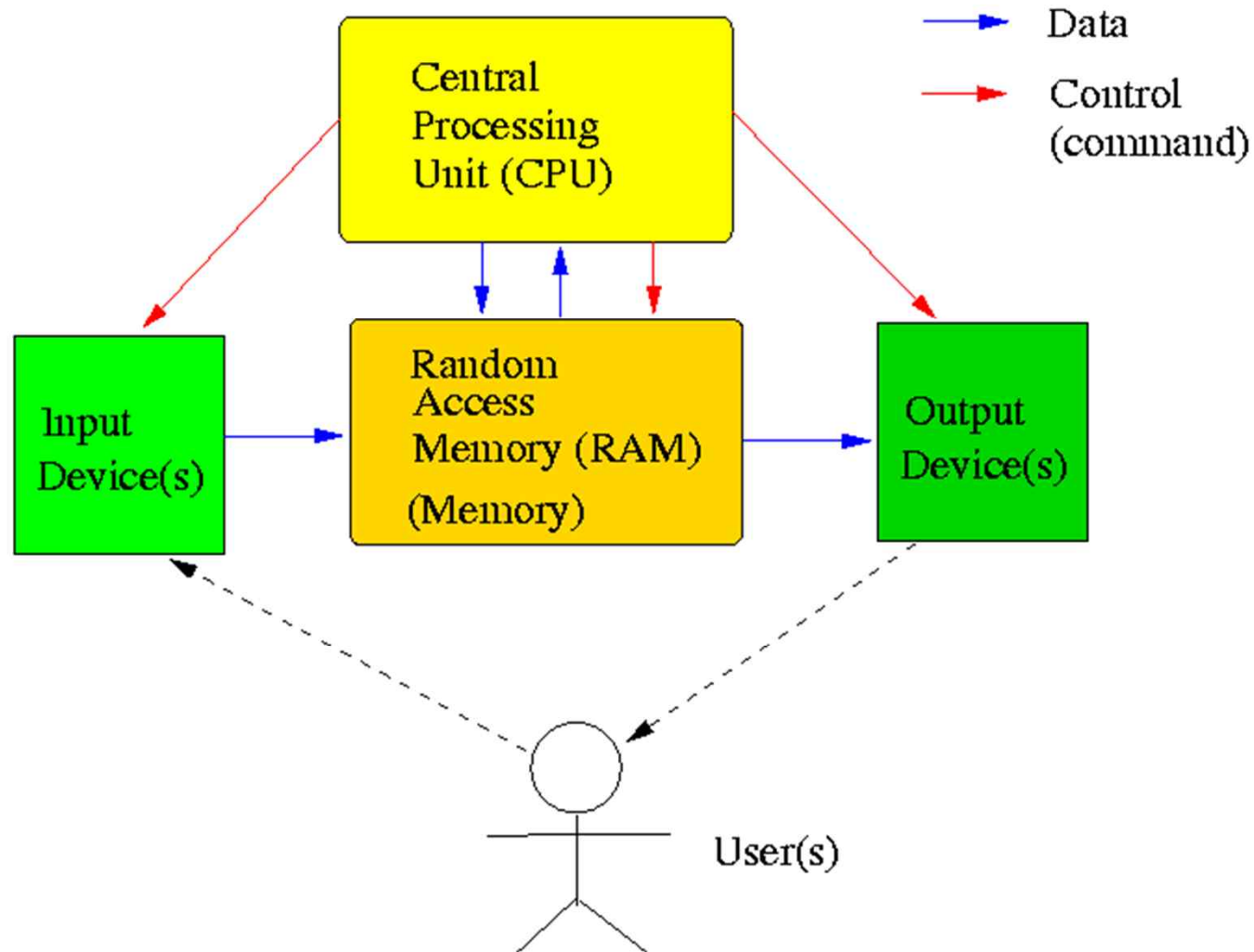
Wearable?

Cloud?



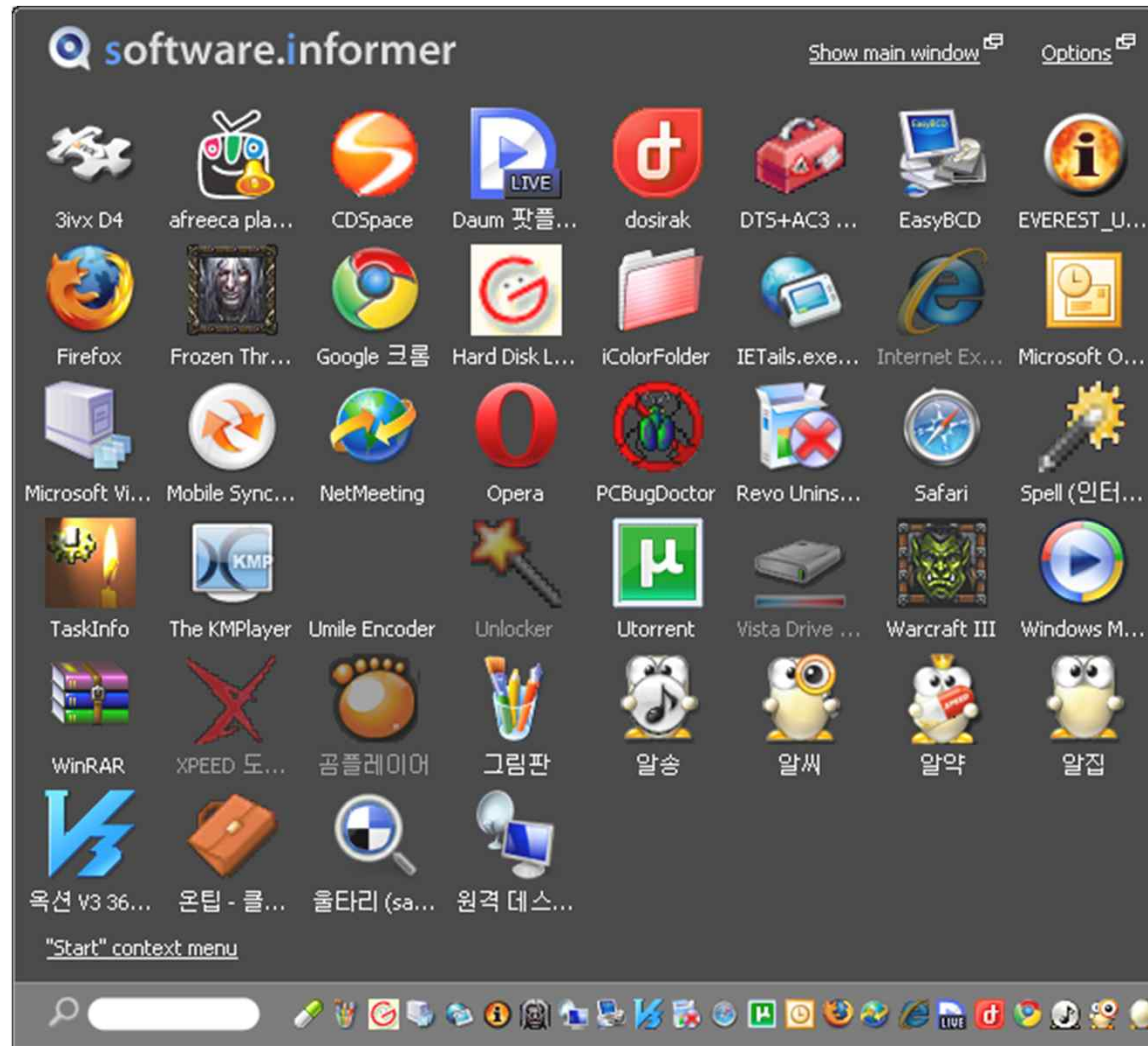
# Structure of Computer (Hardware)

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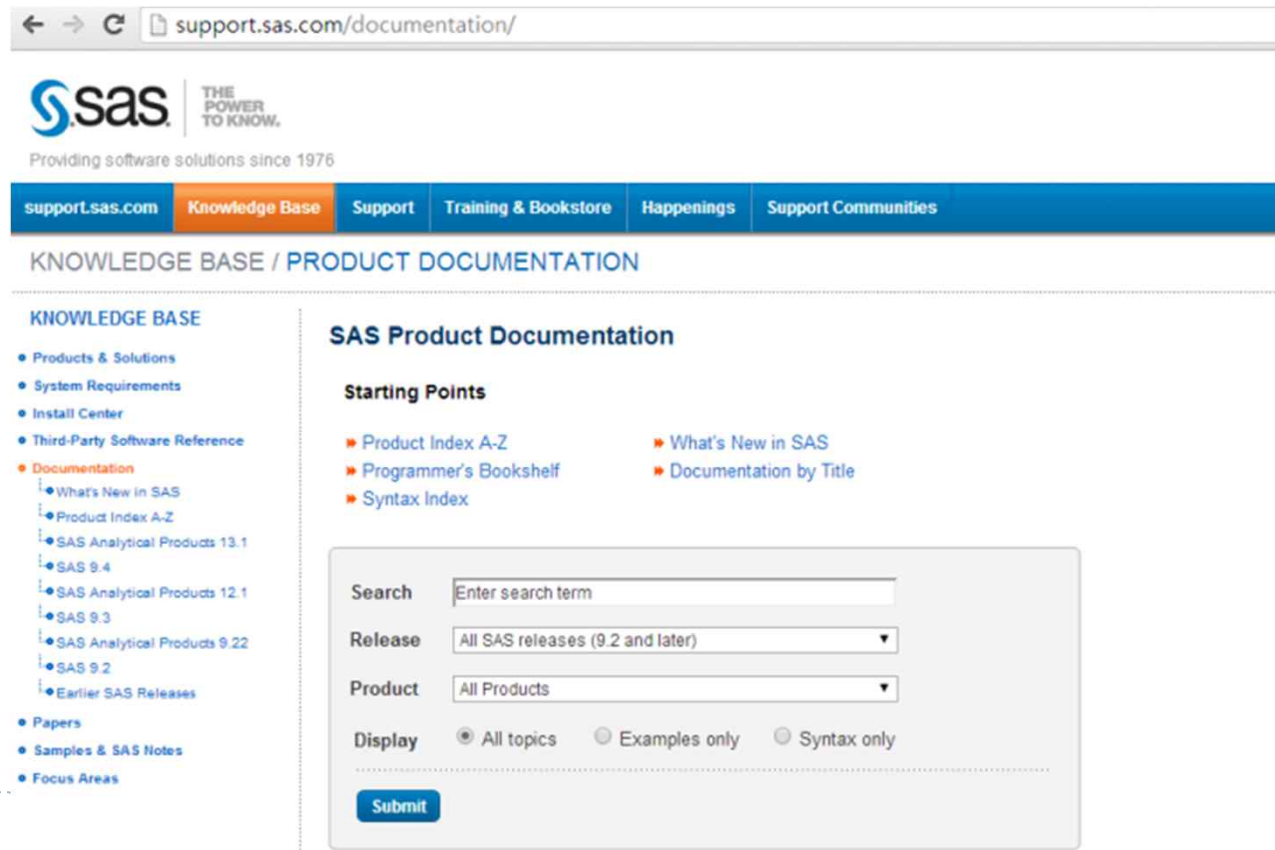


# Software



# SAS (Statistical Analysis System)

- ▷ SAS is a software system that enables you to perform statistical analysis
- ▷ One of the most widely used statistical software
- ▷ Latest version : SAS 9.4 (<http://www.sas.com>)



The screenshot shows the SAS Knowledge Base website. The browser address bar displays `support.sas.com/documentation/`. The SAS logo and tagline "THE POWER TO KNOW." are at the top, along with the text "Providing software solutions since 1976". A navigation bar includes links to `support.sas.com`, `Knowledge Base` (highlighted), `Support`, `Training & Bookstore`, `Happenings`, and `Support Communities`. Below this, the page is titled "KNOWLEDGE BASE / PRODUCT DOCUMENTATION".

The left sidebar, under "KNOWLEDGE BASE", lists various categories: `Products & Solutions`, `System Requirements`, `Install Center`, `Third-Party Software Reference`, `Documentation` (highlighted), `Papers`, `Samples & SAS Notes`, and `Focus Areas`. The `Documentation` section is expanded, showing a hierarchy: `What's New in SAS`, `Product Index A-Z`, `SAS Analytical Products 13.1`, `SAS 9.4`, `SAS Analytical Products 12.1`, `SAS 9.3`, `SAS Analytical Products 9.22`, `SAS 9.2`, and `Earlier SAS Releases`.

The main content area is titled "SAS Product Documentation" and features a "Starting Points" section with links to `Product Index A-Z`, `Programmer's Bookshelf`, `Syntax Index`, `What's New in SAS`, and `Documentation by Title`.

Below the starting points is a search form with the following fields and options:

- Search:** A text input field with the placeholder "Enter search term".
- Release:** A dropdown menu currently set to "All SAS releases (9.2 and later)".
- Product:** A dropdown menu currently set to "All Products".
- Display:** Three radio buttons: `All topics` (selected), `Examples only`, and `Syntax only`.
- Submit:** A blue button to execute the search.

# SAS products

- ▷ Base SAS      Data handling & Basic procedures
- ▷ SAS/STAT      Statistical Analysis
- ▷ SAS/GRAPH    Tool for getting enhanced graphs
- ▷ SAS/OR        Operations Research
- ▷ SAS MACRO    Tool for reducing the amount of text for common tasks
- ▷ SAS/IML       Interactive Matrix Language
- ▷ SAS/QC        Quality control

➡ We will mainly deal with procedures including in Base SAS and SAS/STAT.

# SAS components

SAS consists of two main components.

**DATA step** is used to deal with data sets.

- ▷ Creating data sets
- ▷ Merging or Modifying data sets
- ▷ Importing data from external sources

**PROC (procedure) step** is used to process the data sets produced in DATA step.



# Example

```
data example;  
  input no name $ short free total;  
  datalines;  
1 yunakim 76.20 155.40 231.60  
2 adelsot 74.64 149.95 224.59  
3 carokos 74.12 142.61 216.73  
...  
;  
  
proc print data=example;  
proc plot data=example;  
  plot free*short='*';  
run;
```

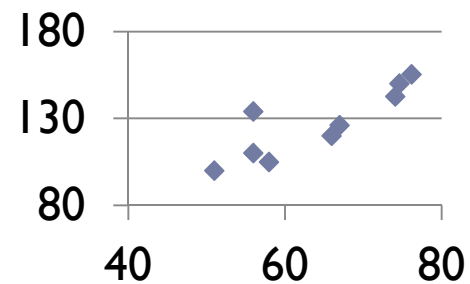
**DATA  
Step**

**variable**  
↓

| no  | name    | short | free   | total  |
|-----|---------|-------|--------|--------|
| 1   | yunakim | 76.20 | 155.40 | 231.60 |
| 2   | adelsot | 74.64 | 149.95 | 224.59 |
| 3   | carokos | 74.12 | 142.61 | 216.73 |
| ... |         |       |        |        |

**observation**  
↖

**PROC  
Step**



# SAS windows

SAS windows consists of several parts.

## **Program Editor**

- ▷ Creating and editing SAS programs

## **Output**

- ▷ Displaying output obtained from execution of SAS program
- ▷ Plots, data summarizing, advanced analysis....

## **Log**

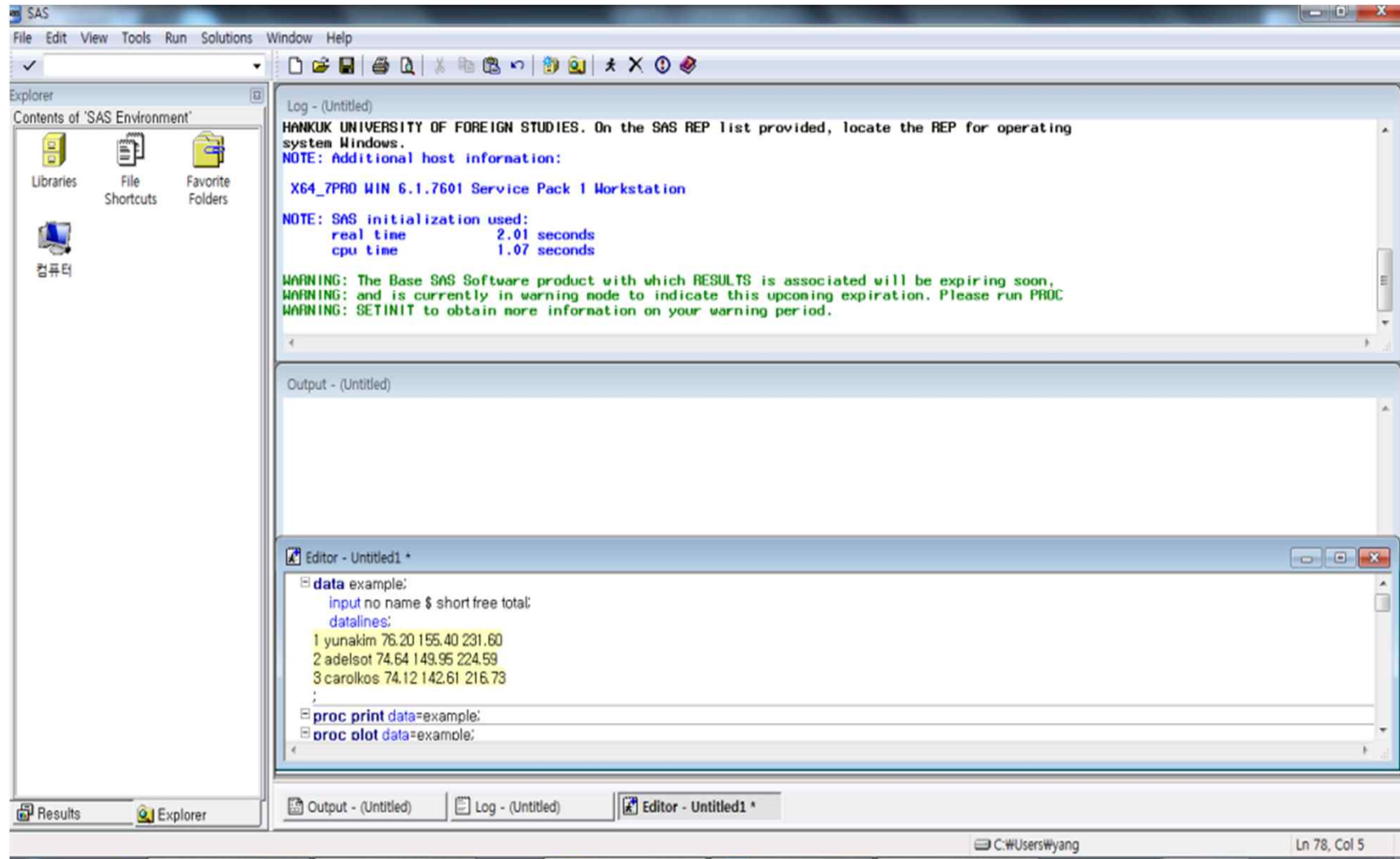
- ▷ Reporting progress or errors of SAS procedures

## **Etc.**

- ▷ Explorer (Libraries)
- ▷ Results



# SAS windows



## Basic rules for SAS statements

- ▷ Each SAS statement must end with a semicolon ‘;’.
- ▷ No difference between capital and small letters. (A = a)
- ▷ You can begin a SAS statement at any column of a line and also can continue it on another line.
- ▷ You can write several statements in one line if they are separated by semicolons.
- ▷ You can omit **run;** between procedures. But, It must appear at the end of procedure statements.
- ▷ No blank is allowed for SAS names.
- ▷ The maximum length of SAS names is 32.
- ▷ You should start with a letter or ‘\_’ for SAS names.
- ▷ Comment : Statements inside ‘/\* \*/’ or starting from ‘\*’ are not executed.

# SAS libraries

## **WORK**

- ▷ Temporary (or working) library
- ▷ Reset whenever SAS restarts.

## **User defined libraries**

- ▷ You can create your own libraries.
- ▷ Stored permanently unless you delete it.