

UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY

First-Year Computer Science

Practical Class — Week 1

The first-year practical work covers three topics:

ML under Windows (Paper 1 and Paper 2)	Java under Unix (Paper 1 and Paper 2)	Hardware (Paper 2 only)
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In each case there are lectures, practical classes and assessed exercises. There are ten assessed exercises associated with Paper 1 of which five relate to ML and five to Java. There are ten further assessed exercises associated with Paper 2 of which seven relate to Hardware; there are also an additional ML exercise and two additional Java exercises.

This document gives details of the timetable of the practical classes and of the assessment procedure.

Michaelmas Term — ML Practical Work — All Candidates

Half the class will be deemed *odds* and half will be deemed *evens* and lists will be issued next week showing who is in which group.

Practical classes and assessments are always on Thursdays. In the table, the Michaelmas Term Thursdays are numbered 1 to 8. The *odds* have ML assessments on Thursdays 1, 2, 3, 5 and 7, and the *evens* have ML assessments on Thursdays 1, 2, 4, 6 and 8. These assessments account for the five ML exercises associated with Paper 1.

Michaelmas								
Week	1	2	3	4	5	6	7	8
Odds	ML	ML	ML		ML		ML	
Evens	ML	ML		ML		ML		ML

At the end of the Michaelmas Term, a sixth ML exercise will be set. This additional ML exercise is associated with Paper 2 but everyone is encouraged to try it.

Michaelmas Term — Hardware Practical Work — Paper 2 Candidates only

The majority of the assessed exercises associated with Paper 2 relate to Hardware. In the Michaelmas Term, Computer Science candidates who are *odds* have Hardware classes and assessments in weeks 4, 6 and 8 and those who are *evens* have Hardware classes and assessments in weeks 3, 5, and 7. Accordingly, the Hardware classes fill the gaps in the table above.

You will be allocated to a morning Hardware class or to an afternoon Hardware class and a schedule will be issued next week showing the allocations.

Lent Term — Java Practical Work — All Candidates

In the Lent Term, everyone has a two-hour Java practical class *every week*. You will be allocated to a class that runs from 2 pm to 4 pm or one that runs from 4 pm to 6 pm and a schedule will be issued next week showing the allocations. Note that there are *eight* Java classes altogether.

A Java exercise will be set at each of the first seven classes and each exercise will be assessed the week after it is set. The first five assessments account for the Java exercises associated with Paper 1 and the last two are associated with Paper 2 but, again, everyone is encouraged to try them.

At the very first Java practical class, the sixth ML exercise will be assessed.

Lent Term — Hardware Practical Work — Paper 2 Candidates only

In the Lent Term, Hardware classes and assessments will continue fortnightly and follow the pattern set in the Michaelmas Term with the *odds* coming in even weeks and the *evens* coming in odd weeks.

Those who have morning Hardware classes will be allocated to the 2 pm to 4 pm Java class and those who have afternoon Hardware classes will finish in time for the Java class that runs from 4 pm to 6 pm.

The three Hardware assessments in the Michaelmas Term and the four in the Lent Term together account for the seven Hardware exercises associated with Paper 2.

Full details of the arrangements for the Hardware classes will be explained in the Digital Electronics lectures.

Announcements by the Head of Department — Portfolios

There are, appended, copies of the Announcements by the Head of Department. These explain that the exercises not only have to be completed and assessed but that portfolios of assessed work have to be submitted by a specified deadline.

Each assessed exercise counts as two raw marks towards the Tripos Examination at the end of the year. [These marks are subject to a scaling procedure which is outside the scope of this document.]

For each day of late portfolio submission two raw marks will be deducted. Fractions of days late are rounded upwards.

The first two programming exercises are undertaken at practical classes in the William Gates Building. These first two classes are nominally concerned with ML but in practice they are largely concerned with administration, including the use of the computers located in the Intel Laboratory.

Accordingly, the first two assessed ML exercises are not very challenging. Guided Practical Sessions which serve as tutorials are issued for each.

From the third assessment onwards, the exercises will become increasingly challenging!

The ML assessed exercises are presented in a separate document. Do not be alarmed that the later exercises seem difficult; remember that the relevant material will be covered in the Foundations of Computer Science course.

Schedule for ML Assessments 1 and 2

The following is an outline of the timetable for the first two Thursday afternoons:

<i>Week 1</i>		<i>Week 2</i>	
2:00	DR F.H. KING Introduction to Practical ML	2:00	DR F.H. KING Practical ML continued
2:35	SRCF REPRESENTATIVE Student Run Computing Facility	2:55	Break
2:40	Break	3:00	MR R.J. STIBBS Further use of Windows
2:45	MR R.J. STIBBS ML under Windows	3:30	Week 2 Practical Class
3:20	Week 1 Practical Class	4:30	DR F.H. KING Tick 3 Briefing

The talks take place in Lecture Theatre 1 in the William Gates Building and the Practical Classes take place in the Intel Laboratory in the same building. The work at the Practical Classes includes completing an assessed exercise.

Schedule for ML Assessments 3, 4 and 5

After the first two weeks, the Michaelmas Term Thursday afternoon classes follow a different pattern. Everyone is expected to complete the work which is to be assessed on a given Thursday by 5 pm on the Wednesday before the Thursday class. On the Thursday afternoon, a demonstrator will spend $7\frac{1}{2}$ minutes discussing the work.

Further details will be given at the Week 2 class.

Getting a Tick

The Guided Practical Session for Week 1 is towards the end of this document. When this is worked through, it will be clear that part of the session is printed out. It is this printout which is assessed. At the end of the session, take the printout to whoever assessing the submissions who will, if satisfied, initial it.

Having one's printout initialled like this is the goal of each assessment and is known as 'getting a tick'. Two things are *essential*:

- Check that the printout really is initialled by the assessor.
- Keep the printout safely. It will form part of your examinable portfolio.

The Tick List

During the year a 'Tick List' will be maintained. This shows on a week-by-week basis how everyone is progressing. A copy of a page of the 2010–11 tick list is appended showing its state at the end of the year. As noted in the Announcements by the Head of Department, it is intended that everyone should achieve a full set of ticks. The sample from last year's Tick List shows that this intention is not unduly optimistic.

An up-to-date copy of the Tick List may be inspected via:

<http://www.cl.cam.ac.uk/teaching/ticks/IAticks.html>

Note that the demonstrators who issue the ticks should always have up-to-date copies of the Tick List. Please check the Tick List periodically.

Some exercises are easier than others but it is hoped that few people will need to spend more than 3 to 5 hours on *any* assessed exercise.

Workstation Availability

The workstations in the Intel Laboratory may be used at any time of the day or night unless another group is having a formal practical class. Most people, though, will probably find it more convenient to use either their own computer or a computer in College. Different Colleges have different arrangements and Directors of Studies or College Computer Officers should be consulted.

Hints for Assessment 3

There is no Guided Practical Session for the third ML assessed exercise but the general style presented in Weeks 1 and 2 should be adhered to for all the programming exercises.

At 4:30 pm on the second Thursday, following the practical class and ticking session, there will be a briefing in Lecture Theatre 1 which will give sufficient additional information about ML to solve Exercise 3.

Hints for Assessment 4

Assessed Exercise 4 is quite hard. For those who are not absolutely sure how to tackle the problem, there will be a briefing in Lecture Theatre 1 at 5 pm on the fourth Thursday, following the ticking session and the afternoon Hardware class.

Help Sessions

Some of the finer points of ML can be quite challenging and not everyone manages to understand everything first time. In recognition of this, three Help Sessions will take place in Lecture Theatre 1 on the fifth, sixth and seventh Thursdays of the Michaelmas Term. These are scheduled to begin at 5 pm so that there will be plenty of time for those who have Hardware classes to finish.

How to Install Linux

Part of the teaching programme for the year is to ensure that *two* well-known operating systems are used: Windows and Unix. To this end, the ML programs should be prepared and run under Windows and the Java programs should be prepared and run under Unix.

The Unix system which is available on the majority of University computers is Linux so, in preparation for the Lent Term, there will be a special lecture at 5 pm on the eighth Thursday of the Michaelmas Term. This will take place in Lecture Theatre 1 and will explain how to install Linux on your personal computer.

F.H. King
1 October 2011

THURSDAY AFTERNOONS

Thursday afternoons are very busy. They are occupied with practical work and with talks leading up to the practical work. They often conclude with a related lecture. Many Thursday afternoons run on until 6 pm or beyond so...

It is essential not to arrange supervisions, rowing, football or another practical class on Thursday afternoons.

The first *two* Thursday classes begin in Lecture Theatre 1 in the William Gates Building. On both occasions, there are briefings and practical work. The briefings explain how to tackle the assessed practical work and describe the assessment procedures.

The *third* Thursday will, for some, include an assessment of the third assessed exercise and, for others, will be the first Hardware practical class.

The *fourth* Thursday will be like the third Thursday but there will be a briefing about the fourth assessed exercise.

The remaining Thursday afternoons follow much the same pattern as the third and fourth Thursdays. There are Help Sessions on the *fifth*, *sixth* and *seventh* Thursdays and on the *eighth* Thursday there is an explanation of How to Install Linux.

UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY

COMPUTER SCIENCE TRIPOS, PART IA, 2012

Announcement by the Head of the Computer Laboratory

This Announcement relates to Regulation 11 of the Computer Science Tripos which is as follows:

11. A candidate for Part IA shall submit to the Head of the Department a portfolio of assessed laboratory work. The Head of the Department shall announce not later than the division of the Michaelmas Term next preceding the examination the nature of the laboratory work to be undertaken and the dates by which, and the manner in which, the results of such work are to be presented. The Examiners shall be provided by the Head of the Department with assessments of the work submitted by each candidate, and shall take these assessments into account when assigning marks for the examination.

Work to be Undertaken

During 2011–12, candidates taking Part IA of the Computer Science Tripos are required to undertake the following 20 units of assessed course work:

ML under Windows —	6 Exercises
Hardware Laboratory —	7 Experiments
Java under Unix —	7 Exercises

Further details will be given by the proprietors of the associated classes.

The exercises and experiments will be assessed weekly in term. The work must be completed to a high standard; this requires more than simply obtaining the required result.

Each unit of course work that has been adequately completed will be given a tick. Fractions of ticks will not be awarded. An unsatisfactory exercise or experiment may be resubmitted.

Submission of Portfolio

In the Easter Term, candidates are required to submit complete portfolios of their coursework to the Head of the Department. It is therefore essential to retain all the items that have been initialled by assessors. The portfolios must reach the Student Administrator by 12 noon on Friday 25 May 2012. Any candidate who fails to submit the portfolio by the deadline will incur a penalty.

The ratio of marks allocated to the two written papers (Computer Science Paper 1 and Paper 2) and to the portfolio will be 160:40.

The intention is that every candidate should achieve a full set of 20 ticks.

A. Hopper
Head of the Department

UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY

NATURAL SCIENCES TRIPOS, PART IA, 2012
(SUBJECT COMPUTER SCIENCE)

POLITICS, PSYCHOLOGY AND SOCIOLOGY, PART I, 2012
(INTRODUCTION TO COMPUTER SCIENCE)

Announcement by the Head of the Computer Laboratory

This Announcement applies to candidates who are not Computer Scientists but who are offering Paper 1 of the Computer Science Tripos. The Announcement relates to Regulation 11 of the Computer Science Tripos which is as follows:

11. A candidate for Part IA shall submit to the Head of the Department a portfolio of assessed laboratory work. The Head of the Department shall announce not later than the division of the Michaelmas Term next preceding the examination the nature of the laboratory work to be undertaken and the dates by which, and the manner in which, the results of such work are to be presented. The Examiners shall be provided by the Head of the Department with assessments of the work submitted by each candidate, and shall take these assessments into account when assigning marks for the examination.

Work to be Undertaken

During 2011–12, candidates taking the Computer Science option of Part IA of the Natural Sciences Tripos or the Introduction to Computer Science paper in Part I of the Politics, Psychology and Sociology Tripos are required to undertake the following 10 units of assessed course work:

ML under Windows — 5 Exercises
Java under Unix — 5 Exercises

Further details will be given by the proprietors of the associated classes.

The exercises will be assessed approximately weekly in term. The work must be completed to a high standard; this requires more than simply obtaining the required result.

Each unit of course work that has been adequately completed will be given a tick. Fractions of ticks will not be awarded. An unsatisfactory exercise may be resubmitted.

Submission of Portfolio

In the Easter Term, candidates are required to submit complete portfolios of their course work to the Head of the Department. It is therefore essential to retain all the items that have been initialled by assessors. The portfolios must reach the Student Administrator by 12 noon on Friday 25 May 2012. Any candidate who fails to submit the portfolio by the deadline will incur a penalty.

The ratio of marks allocated to the written paper (Computer Science Paper 1) and to the portfolio will be 80:20.

The intention is that every candidate should achieve a full set of 10 ticks.

A. Hopper
Head of the Department

ML Guided Practical Session – Week 1

- Press Ctrl+Alt+Delete, read the warning and then click OK.
- Type your username (CRSID) in the Username box and your PWF password in the Password box, then click OK.
- Close the motd-Notepad (Message-of-the-Day) window if you wish.
- Click the green start button.
- Click Programs.
- Double-click Utilities.
- If you have not already done so, change your PWF password:
 - Double-click Change Password.
 - Change your password (no fewer than 6 and no more than 8 characters), pressing ENTER at the end of each line.
- Click the Back button to return to Programs.
- Double-click Teaching Packages.
- Double-click Computer Laboratory.
- Double-click Cambridge ML.
- In the Cambridge ML window, work through the following (this is Exercise 1 in the ML Exercise Sheets), *being careful to remember the semi-colon at the end of each line*. Press ENTER after each ML response, so that there is an almost-blank line between illustrations and your output is arranged neatly, as shown:

```
- val x = 0.1;
> val x = 0.1 : real
-
- val y = x + x;
> val y = 0.2 : real
-
- val z = y + y;
> val z = 0.4 : real
-
- 2.0 - z - z - y;
> 1.0 : real
-
- 2.0 - x - x - x - x - x - x - x - x - x - x;
> 0.9999999999999992 : real
-
- 1.0 - x - x - x - x - x - x - x - x - x - x;
> 1.387778780781446E 16 : real
-
```


- Choose Save As from the File menu.
- In the File name box, overwrite SAVEFILE.LOG with Tick1 and click OK.
- Choose Exit from the File menu.
- Click the Back button twice to return to Programs.
- Double-click Utilities.
- Check that you have been given some printer credit:
 - Double-click Print Balance; click OK to accept the secure connection.
 - If the Raven Authentication Service window appears, type your CRSID in the User-id box and your Raven password in the Password box, then click Submit; click Yes to continue.
 - Tell a demonstrator if your balance is shown as £0.00.
 - Close Internet Explorer.
- Click the Back button to return to Programs.
- Double-click Accessories.
- Double-click Notepad to start Notepad.
- Choose Open from the File menu.
- In the Files of type drop-down list box, select All Files.
- In the list box, double-click Tick1.LOG to open it.
- Press ENTER twice to open up a gap at the top.
- Press Ctrl+Home to move the insertion point to the beginning and key in a single line looking like the following but with your own name at the end:

```
TICK 1 SUBMISSION FROM F.H. KING...
```
- Choose Print from the File menu, and then click Print in the Print dialogue box.
- Choose Exit from the File menu and save the changes.
- Click the start button.
- Click Log Off.
- Click Log Off. Do not switch off the computer or screen.
- Collect your output from the printer.
- Get it signed by the Ticker.
- **LOOK AFTER YOUR SIGNED SUBMISSION CAREFULLY.** It is part of your Tick Portfolio. The full Portfolio is to be handed in shortly before the examination.

