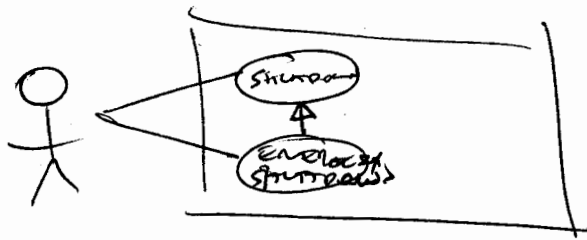


A USE CASE DIAGRAM

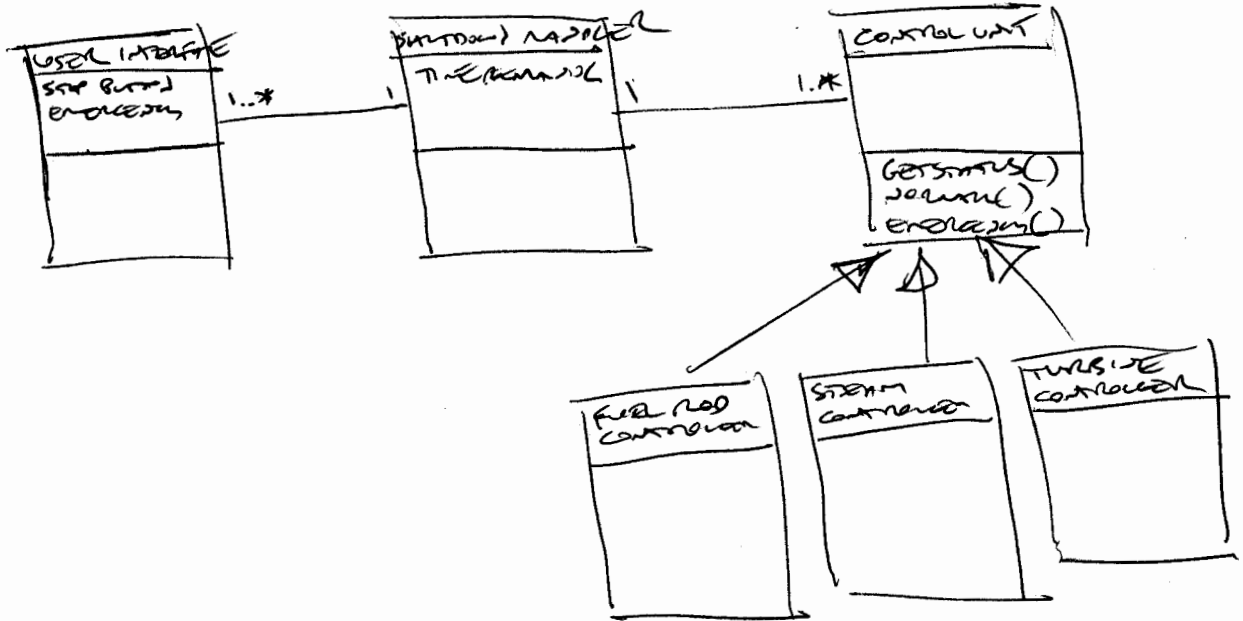


Computer Science Tripos Part II (General) 2005

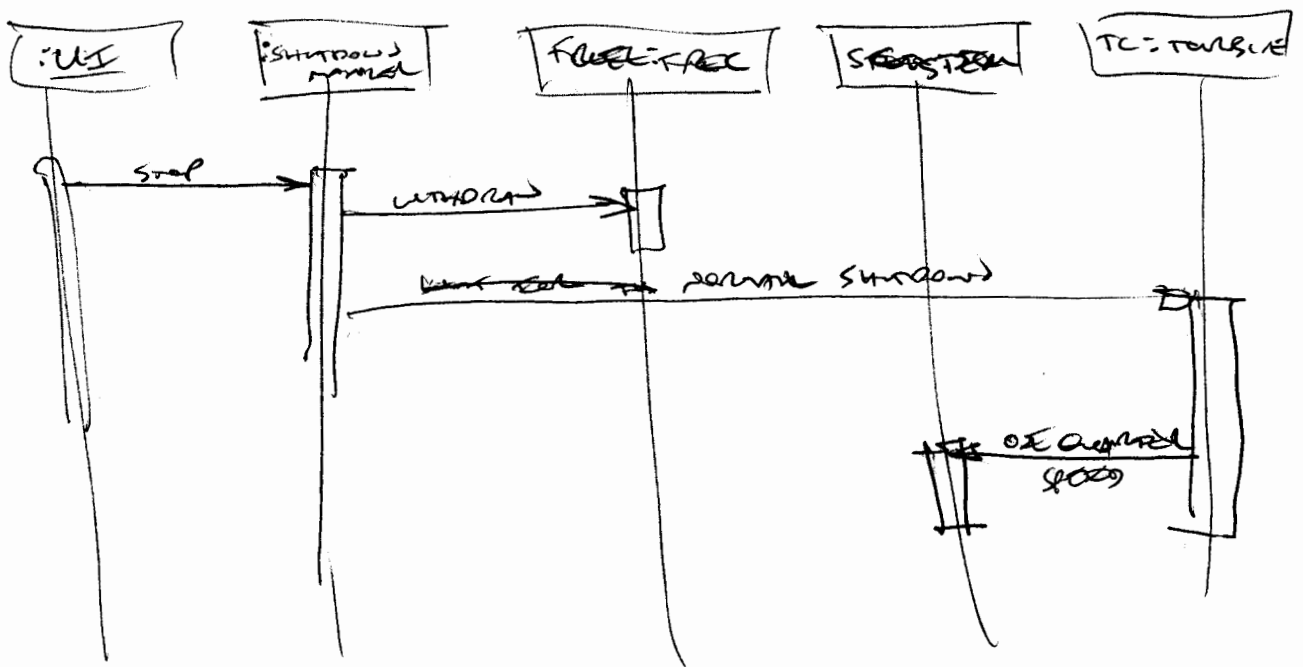
Paper 11 Question 11

AFB — Software Engineering and Design

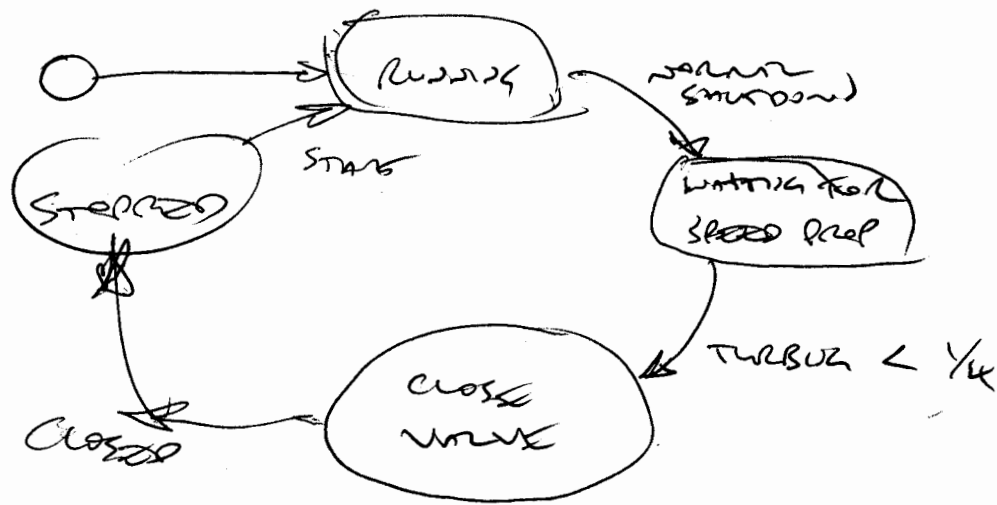
CLASS DIAGRAM



SEQUENCE DIAGRAM



STRUCTURAL DIAGRAM (STEAM CONTROLLER)



- ⑧ WHEN QUALITY STANDARDS SUCH AS ISO 9000 ARE APPLIED TO THE SOFTWARE DEVELOPMENT FIELD, ACTUAL PRACTICES WILL BE DETERMINED BY A QUALITY MANUAL. IN THIS DOMAIN, A SUITABLE SET OF PROCEDURES SHOULD INCLUDE REVISION CONTROL OF EACH TYPE OF DIAGRAM, TRACEABILITY OF REQUIREMENTS BETWEEN DIAGRAMS, AND VERIFICATION AND REVIEW PROCEDURES TO ENSURE THAT DIAGRAMS ARE CONSISTENT, MEET REQUIREMENTS, HAVE BEEN IMPLEMENTED IN CODE.

Software Engineering and Design – Paper 11 Question 11 (AFB)

2005

Imagine that you are the software designer responsible for a system that manages the shutdown of a nuclear power station. In normal shutdown mode fuel rods are withdrawn immediately, but steam generation is only stopped after turbine speed has dropped to one quarter. However in emergency shutdown mode steam generation must be stopped immediately.

- (a) Sketch initial UML diagrams showing important aspects of your design, including a use case diagram, a class diagram, a sequence diagram and a statechart diagram. marks

PAGES 30-35 OF LECTURE NOTES [4 each]

- (b) What quality standards should be applied in managing these and subsequent design documents? [4 marks]

PAGES 107-112 OF NOTES

- a)
- 1 MARK FOR OVERALL FORM AS REQUESTED
 - 1 MARK FOR SUITABLE MARK STYLE
 - 1 MARK FOR SUITABLE CONNECTIONS
 - 1 MARK FOR SUITABLE TEXT

- b)
- 1 MARK FOR MENTION OF EITHER ISO 9000, TICKIT, QSD/NOSA STANDARD OR CMM
 - 1 MARK EACH FOR FEATURE OF THAT STANDARD WITH RESPECT TO DOCUMENT PRODUCTION