**Ερώτημα 3. Ευρετήρια Β+-δένδρα**

Θεωρήστε τις τελευταίες 20 εγγραφές του πίνακα Products, όπως αυτές εισήχθησαν στο συγκεκριμένο πίνακα της ΒΔ. Έστω ότι χτίζετε ένα ευρετήριο Β+-δένδρο τάξης n=5 στο πρωτεύον κλειδί Prod\_ID του πίνακα Products. Υποθέστε ότι το δένδρο είναι αρχικά άδειο και ότι οι τιμές προστίθενται μία προς μια σύμφωνα με τη σειρά καταχώρησης των εγγραφών. Παρουσιάστε τη μορφή του Β+-δένδρου που προκύπτει ύστερα από την προσθήκη κάθε κλειδιού.

* Το Β+ δέντρο στην αρχή ειναι άδειο.

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* Εισάγεται το 20ο στοιχείο από το τέλος με ID =9981

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|  | 9981 |  |  |  |  |  |  |  |

* Εισάγεται το 19ο στοιχείο απο το τέλος με ID =9982

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|  | 9981 |  | 9982 |  |  |  |  |  |

* Εισάγεται το 18ο στοιχείο απο το τέλος με ID =9983

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  |  |  |

* Εισάγεται το 17ο στοιχείο απο το τέλος με ID =9984

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

* Εισάγεται το 16ο στοιχείο απο το τέλος με ID =9985

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|  | 9985 |  |  |  |  |  |  |  |

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|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  |  |  |  |  |  |  |

* Εισάγεται το 15ο στοιχείο απο το τέλος με ID =9986

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|  | 9985 |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  | 9986 |  |  |  |  |  |

* Εισάγεται το 14ο στοιχείο απο το τέλος με ID =9987

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|  | 9985 |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  | 9986 |  | 9987 |  |  |  |

* Εισάγεται το 13ο στοιχείο απο το τέλος με ID =19988

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  | 9986 |  | 9987 |  | 9988 |  |

* Ομοίως εισάγονται όλα τα στοιχεία στο δέντρο και τελικά έχουμε το εξής:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9993 |  |  |  |  |  |  |  |

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|  | 9985 |  | 9989 |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9997 |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9985 |  | 9986 |  | 9987 |  | 9988 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9989 |  | 9990 |  | 9991 |  | 9992 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9997 |  | 9998 |  | 9999 |  | 10000 |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9981 |  | 9982 |  | 9983 |  | 9984 |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 9993 |  | 9994 |  | 9995 |  | 9996 |  |